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## General and Specific Attitudes

BY

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A STUDY FROM THE  
HARVARD PSYCHOLOGICAL LABORATORY

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## FOREWORD

Under the influence of various modern dynamic points of view there has grown up in general psychology a certain dissatisfaction with the traditional conceptions of attitude. Furthermore it is precisely this problem of attitude that is the chief interest of contemporary social psychology. And yet one searches in vain through recent literature for an account of attitude that is reasonably comprehensive, experimentally supported, and free from the bias of particular psychological or sociological schools. This state of affairs is responsible for the present monograph. Without presuppositions of any kind, Dr. Cantril has made a direct experimental attack upon the problem of the nature and range of attitude. The breadth of his treatment and the univocality of his results make his contribution not only timely but decisive.

The Würzburg psychologists, to whose general point of view the author's results give strong support, left the problem of the nature of the *Bewusstseinslagen* unsolved. Preoccupied with judgment, association, and thought, they did little more than discover what Titchener calls the problem of "posture or attitude of consciousness". They did not shift their attack to this problem directly, but on the whole were content to leave their *Bewusstheiten* and *determinierende Tendenzen* as indefinite discoveries. Hence their pioneer work is not adequate to a general theory of attitude, and for that reason, is not directly applicable to the issues confronting modern social psychology.

Insofar as attitudes are impalpable they cannot, of course, be completely studied with the traditional introspective technique. Dr. Cantril shows this to be a fact. The reports of his observers, it is true, do reveal the necessity of postulating some form of imageless comprehension; but it is his refinement of procedure that discloses the conditions under which the *unanschaulich* process occurs. Had previous investigators observed the difference, as Dr. Cantril does, between the reports secured in immediate and in delayed introspection, some of the controversy

between Clarke and Jacobson, Moore and Tolman, and probably even between Titchener and the *Würzburger*, would have been avoided.

The author, unlike his predecessors in the field, uses his verification of the imageless nature of attitudes as a point of departure rather than as a terminus for his study. For him the central problem becomes the range of these determining tendencies: whether they are as narrow as Watt's *Aufgaben* or as broad as Dilthey's *Weltanschauungen*, whether with the lapse of time general impressions become specific images or *vice versa*; whether specific or general presentation is better understood, and which has superior retentability.

One aspect of the author's method deserves special note. His approach is pluralistic, *i.e.*, he does not confine his experiments to any one type of material. The tachistoscope and chronoscope have their place in his technique, but so too have case-studies of personality and pencil and paper tests. Interpretations often rest upon too narrow an experimental foundation: a theory of affection is based upon a study with odors, or a theory of memory is derived from work with a few nonsense syllables. The same inadequacy of material underlies many formulations in social psychology. At present it is rare to find theories put forth without any experimental support, but it is the rule that such support is fractional and selective. Dr. Cantril's use of diverse materials is therefore a contribution to methodology.

The present study implies a continuity of general and social psychology. Sometimes social psychologists, especially those who are at the same time sociologists, start with a treacherous assumption regarding the "independence" of social psychology. It is undoubtedly safer to postulate a continuity of phenomena from the individual psychology of the laboratory to the psychology of the crowd, sect, or nation. For example, if attitudes when adequately studied in the laboratory turn out to be *specific* motor sets, then the designing of scales to measure "social" attitudes must be guided by this finding; if, on the contrary, attitudes turn out in experiment to be *general* dispositions, it is reasonable to believe that they will intrude themselves as general dispositions

at the polls or in the audience. Wherever possible a problem should be studied in both its individual and social aspects, and a psychological theory should be equally applicable to both the general and the social fields.

The problem of the composition of personality receives gratifying treatment in Chapter V. The author's criticism of the view that personality is composed merely of specific action-tendencies is convincing. Apparently the phenomenon of generalization in attitude is only one aspect of a broader principle of inclusiveness in mental organization, detected likewise in the traits and evaluative tendencies of personality. Although the author does not insist upon the point, it appears likely from the work reported in Chapter VI (see also his final conclusion in Chapter IX), that the generalized dispositions and attitudes of people may play a dynamic ("causal") rôle in their behavior. Broad organization seems to *become* broad determination. This evidence will be welcomed by supporters of the theory propounded in Woodworth's *Dynamic Psychology*.

Such are some of the principal contributions to the psychology of attitude contained in this study. The treatment is broad, though of course not exhaustive. It is not the author's task to show the place of attitudes in attention, in conduct, or in relation to all the variables in the stimulus situation. These are still unsolved problems. Nor does he go very far in applying his discoveries to the construction of scales or inventories for social attitudes. The discerning reader can, however, see for himself how intolerable it now is to consider attitude merely as a "tendency to respond in a particular way to a particular situation" or as a synonym for simple habit. He can also see how plausible are Thurstone's discovery of general factors of interest, and the discovery of broad institutional or individualistic prejudices among students, reported in the recent study of D. Katz and F. H. Allport. The phenomenon of generalization in attitude has made a successful *début* in the laboratory. It is to be hoped that its importance will be adequately recognized in subsequent research and theory.

GORDON W. ALLPORT



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1800. The following is a list of the  
books and papers which have been  
published on the subject of  
the history of the United States  
and the American Revolution.  
The list is not complete, but it  
includes the most important works  
published in the United States and  
abroad. The list is arranged in  
chronological order, and the  
titles are given in the order  
in which they were published.  
The list is not intended to be  
exhaustive, but it is intended to  
be representative of the best  
and most important works on  
the subject of the history of the  
United States and the American  
Revolution.

## CHAPTER I

### THE PROBLEM OF "GENERAL" ATTITUDES IN PSYCHOLOGICAL LITERATURE

#### *Brief Historical Survey*

The existence of various types of mental processes or idealational patterns which are less specific than other processes or patterns has, of course, been hypothesized often in the history of psychology. It is perhaps fair to assume that John Stuart Mill<sup>1</sup> had the problem in mind in making his distinction between the "simple" and "complex" ideas, the latter being "generated" by the former in a "mental chemistry". A similar doctrine is seen in Wundt's creative synthesis<sup>2</sup>.

A classical demonstration of the existence of one form of general mental set came from the Würzburg Laboratory<sup>3</sup>. In 1903, Orth<sup>4</sup> found it necessary to posit a new content of the mind to account for certain *unanschauliche* mental processes which had been found to play so great a rôle in Marbe's study of judgment<sup>5</sup>. This new element Orth called *Bewusstseinslage* or "conscious attitude". With the results of Marbe and Orth as a background, Watt experimented on the psychology of thought and contributed the notions of *Aufgabe* and *Einstellung*. According to Watt<sup>6</sup>: "Eine Aufgabe wäre demnach ein Bewusstseins-

1. Mill, J. S. *System of logic, ratiocinative and inductive*. New York, Harper (8th Ed.), 1887, 589-596.

2. For a discussion of Wundt's "creative synthesis" and its similarity to Mill's "mental chemistry" see Boring, E. G., *A history of experimental psychology*. New York, Century, 1929, 331.

3. For a summary of the results of the Würzburg School, see Boring, E. G., *A history of experimental psychology*, 393-402; and Titchener, E. B., *Experimental psychology of the thought processes*. New York, Macmillan, 1909.

4. Orth, J. *Gefühl und Bewusstseinslage*. *Abhandlung a. d. Geb. d. Pädagog. Psychol. u. Physiol.*, 1903.

5. Marbe, K. *Experimentell-psychologische Untersuchungen über das Urteil, eine Einleitung in die Logik*. Leipzig, 1901.

6. Watt, H. J. *Experimentelle Beiträge zu einer Theorie des Denkens*. Leipzig, 1904.

zustand, der nur existiert, um eine gewisse sinnvolle Reihe von Reproduktionen zu bestimmen, und nur durch diese anzugeben ist, ja nur als diese ins Bewusstsein kommt; eine Bewusstseinslage wäre dasselbe ohne einen bestimmten Namen (p. 148). . . .

*In jedem Reiz*—und irgendein Erlebnis, worüber wir etwas aussagen, ist auch in diesem Sinn ein Reiz—*liegt alles, was unter dem Einfluss irgendeiner Aufgabe in der dadurch bestimmten Reaktion in sinnvoller Beziehung genau zum Ausdruck kommt* (p. 148). . . . Wenn man sich an die bekannte Unbestimmtheit vieler Vorstellungen erinnert, leuchtet es ein, dass reale psychische Gebilde, die ganz bestimmt sein müssen, obgleich sie als solche nicht erkannt werden, die Voraussetzung dieser Theorie sind” (p. 151, italics Watt’s). The work of the Würzburg School was continued by Ach<sup>7</sup> and Messer<sup>8</sup> but no further significant contributions were made by them except in the clarification of the point of view.

Titchener<sup>9</sup> accepted the reality of these “attitudinal feels” (p. 181) or *Aufgaben* found by the Würzburg School but argued that they were products of older and partially or totally unconscious mental elements. Thus, too, his explanation of the unconscious recognition of meaning<sup>10</sup> was that the context necessary for a particular meaning in time became “‘carried’ in purely physiological terms” (p. 178).

The problem of our investigations also has a certain relationship to the question of *Akt* vs. *content* as it is found in Brentano<sup>11</sup> and the other act psychologists<sup>12</sup>. Is it possible that a generality in mental life can function without any reference to specific content? For Titchener<sup>13</sup> the distinction between

7. Ach, N. *Ueber die Willenstätigkeit und das Denken*. Göttingen, Vandenhoeck, 1905.

8. Messer, A. *Experimentell-psychologische Untersuchungen über das Denken*. *Arch. f. d. ges. Psychol.*, 1906, 8, 1-224.

9. Titchener, E. B. *Experimental psychology of the thought processes*.

10. For a summary of the experimental work and a discussion of meaning and imagery and their relation to our problem, see Chapter II.

11. Brentano, F. *Psychologie vom empirischen Standpunkte*. Leipzig, 1874.

12. For a summary of the act psychologies of Stumpf, Witasek, Husserl, Messer, and Kuelpe, see Boring, E. G., *A history of experimental psychology*, 357-361 and 442-451; and Titchener, E. B., *Experimental psychology of the thought processes*.

13. Titchener, E. B. *Experimental psychology of the thought processes*, 60f.

act and content came "as that of temporal course and qualitative specificity of a single process. . . . The way in which a process runs its course,—that is its 'act,' that is what constitutes its sensing or feeling or thinking; the quality which is thus in passage,—that is its 'content,' that is what constitutes its tone or pleasure." To put our problem in Titchener's terms: Are we, then, justified in assuming that there can be an awareness of the temporal course of a process without conscious reference to any qualitative specificity?<sup>14</sup> And, further, does the temporal process in any way determine the nature of the specificity which will exhibit itself when that temporal process is brought into contact with some datum of experience (content)?<sup>15</sup>

#### *Recent Conceptions of Attitude*

In recent years the problem of generality and specificity has been much to the fore and has revolved itself largely around the concepts of "attitude" and "trait". Many writers interested in social psychology and sociology and in the relation of these two fields of study to pure psychology seem to conceive of "attitude" as the key problem through which *Fachpsychologie* may contribute to the two other fields. "Psychology", say Thomas and Znaniecki<sup>16</sup>, "is, however, the science which has been definitely identified with the study of consciousness, and the main question at this point is how far psychology has covered or is capable of covering the field of attitudes. . . . *Social psychology is precisely the science of attitudes.* . . . . Indeed, every manifestation of conscious life, however simple or complex, general or particular, can be treated as an attitude, because every one involves a tendency to action" (Italics mine). According to Faris<sup>17</sup> "the important consideration is that the invisible and subjective experiences of men are integral and inseparable parts of their objective movements. *To neglect the study of attitudes will be to fail to understand personality*" (Italics mine).

14. For the experimental results and discussion concerning this question, see Ch. II, pp. 17-36; Ch. III, pp. 37-53.

15. See Ch. VI and Ch. VII, pp. 00-00.

16. Thomas, W. I., and Znaniecki, F. *The Polish peasant in America*. Chicago, Knopf, 1918, Vol. I, 27.

17. Faris, E. Attitudes and behavior. *Amer. J. of Sociol.*, 1928, 34, 281.

It is not our intention in this chapter to point out inconsistencies in the use of "attitude" or to quarrel about its definition<sup>18</sup>. Our purpose is simply to illustrate how the term is used by various writers with the constant implications, first, that a general determining tendency does exist and, second, that a general determining tendency does influence specific actions or other attitudes considered to be more specific. Both of these suppositions are found in the writings of many psychologists and sociologists interested in the subject.

Warren and Carmichael<sup>19</sup> hold that "Because of their complexity our ideals are seldom definite, concrete experiences. But they develop in the form of deep-lying *ideal attitudes*, which serve as motives of action and control the course of our lives. The idealistic man, the practical man, the scientist, and other types are distinguished on the basis of certain underlying attitudes which govern their behavior and conduct" (Italics theirs).

G. W. Allport<sup>20</sup> has pointed out the confusion and contributed a definition. He says: "At present there is little agreement among psychologists as to the nature of attitudes; some say, for example, that they are verbal fictions, some say they are psychological realities. Among the second class, there are various guesses as to the precise nature of attitudes. . . . .

"A temporary definition of attitude, . . . . is the follow-

18. Concerning the present confusion in the use of "attitude", Faris writes (*Attitudes and behavior*, *Amer. J. of Sociol.*, 34, 1928, 277): "The question of definition and the inconsistency in the use of the word 'attitude' is . . . more a matter of lexicography than of science. A word means what men mean by it, and most dictionaries patiently record all the uses of the words in the language. If one author is inconsistent, and most of them do slip, he should be held accountable for the fault, but scientific progress will not be made by mere voting about words. It is also a matter of common knowledge that other words are used instead of the word 'attitude' to denote the same thing, e.g., tendency, predisposition, disposition, and habit. To the tyro this is confusing; but if we think denotatively, we cannot go far wrong. Even the word attitude could be abandoned and a meaningless symbol substituted without loss. We could speak of the element *x* which is left as a residue of a former action and predisposes to a future act or type of acts."

19. Warren, H. C., and Carmichael, L. *Elements of human psychology*. Boston, Houghton Mifflin, 1930, 326.

20. Allport, G. W. *The composition of political attitudes*. *Amer. J. of Sociol.*, 1929, 35, 221f.

ing: An attitude is a disposition to act which is built up by the integration of numerous specific responses of a similar type, but which exists as a general neural "set," and when activated by a specific stimulus results in behavior that is more obviously a function of the disposition than of the activating stimulus. The important thing to note about this definition is that it considers attitudes as broad, generic (not simple and specific) determinants of behavior. . . .

"The fact that behavior is dominated by broad and inclusive mental sets, by generic traits, should be apparent to any observer. The contrary view, however, is surprisingly widespread owing to a subtle error in the interpretation of certain recent statistical studies. The error seems to have arisen in some such way as the following: Ethical conceptions, such as 'honesty' have been examined, and the evidence of non-focal or specific behavior in relation to this conception has been taken as evidence that no higher neural organization of *any* type exists. It need only be pointed out, to prove this conclusion false, that a linguistic general concept does not necessarily correspond to a neural generalization . . . it seems incorrect to assume, at least on present evidence, that behavior is a function merely of the immediate stimulus situation without further reference to the generic determinants (traits and attitudes) which common sense assures us are the distinctive criteria of personality."

Bain is also aware of the confusion and points out<sup>21</sup> that "The principal aspects of this are the confusion between opinions and attitudes, the impossibility to separate attitudes from values, and the identification of attitudes with hypothetical subjective states of consciousness" (p. 949). "The whole traditional clutter of conscious states and subjective concepts must be thrown overboard; or, if retained, must be redefined in terms of movement. . . . Feelings, sentiments, . . . attitudes, and so on, mean nothing and worse than nothing, unless they are interpreted as overt behavior of some kind. Every man of science will agree with Lotka that 'We must wait till the thing

21. Bain, Read. An attitude on attitude research. *Amer. J. of Sociol.*, 1928, 33, 940-957.

is present to our senses before we name it.' In other words, we cannot speak of the existence of attitudes or wishes or sentiments or any other phenomena of consciousness except as they are manifested in overt behavior. . . . So we may say, 'An attitude is the relatively stable overt behavior of a person which affects his status.' . . . To define attitude as a mere behavior pattern would make it equivalent to habit and vegetative process. There is an habitual element in attitude as I have defined it, but it is social habit, value habit, status-fixing habit" (905f.). He continues that "attitude should be reserved for the total status-fixing responses of a person" (p. 951).

Bain's more recent conception is that attitudes "refer in a general way to types of acquired action-patterns that are definitely concerned with human motivation" <sup>22</sup>.

In Koehler's *Gestalt Psychology*<sup>23</sup> we find the term "attitude" used to express some kind of a physiological stress or activity within the organism. This stress depends both upon the condition of the organism and the nature of the objective situation to which the organism—at that instant and in that condition—is reacting. Koehler necessarily finds an intrinsic difficulty in the use of "attitude" for he is forced to employ it to cover a multiplicity of shadings which are distinguished in his native language by different words. He says that "from the viewpoint of *gestalt* psychology a change of attitude involves a definite physiological stress exerted upon a sensory field by processes originating in other parts of the nervous system, and to some degree the organization of the field may yield to it (p. 184) . . . the most compulsory organization which can occur in experience is a dynamical event or attitude, consisting of one member from which it issues, and another one toward which it is directed (p. 323). . . . In *gestalt* theory the varieties of directed attitude are not considered as the operation of pre-existing drives or instincts, but rather as the effects of actual situations. In this connection, however, the term 'situation' has to be used with some care. Evidently it is not

22. Bain, Read. Theory and measurement of attitudes and opinions. *Psychol. Bull.*, 27, 1930, 359.

23. Koehler, W. *Gestalt psychology*. New York, Liveright, 1929.

only the external situation which in a great many cases has to be considered, but the internal situation of the organism as well" (p. 324). In terms of the problem of our own investigation this "internal situation" as it exists on the mental level is the object of our study.

F. H. Allport<sup>24</sup> emphasizes the motor side: "The motor set thus built up by suggestion we may call an attitude. In everyday life attitudes are built up in similar fashion. We talk over with our friend the feasibility of some civic project, or the merits of the new minister; and quite without knowing it we become set to react in accordance with this discussion when suitable occasion arises" (p. 244). This author also holds that "There is a general social attitude<sup>25</sup> more universal and permanent than the ones we have just mentioned. . . . We have . . . a prepared set for responding in the presence of *people as such*. The mere presence of a fellow being determines us to a more selected and controlled group of reactions than when in the freedom of solitude . . . we adopt a bearing of courteous, socialized dignity; and this attitude determines the character of the things we do or say" (p. 320f.).

The dynamic nature of attitudes as they influence specific activity is pointed out by Thomas and Znaniecki<sup>26</sup>: "By attitude we understand a process of individual consciousness which determines real or possible activity of the individual in the social world. . . . The attitude is thus the individual counterpart of the social value; activity, in whatever form, is the bond between them. By its reference to activity and thereby to individual consciousness the value is distinguished from the natural thing. By its reference to activity and thereby to the social world the attitude is distinguished from the psychical state. . . . A psychological process is an attitude treated as an object in itself, isolated by a reflective act of attention, and taken first of all

24. Allport, F. H. *Social psychology*. Boston, Houghton Mifflin, 1924.

25. It is precisely such assumptions, *viz.*, of "a general social attitude"—made uncritically by various writers—that the present study investigates experimentally.

26. Thomas, W. I., and Znaniecki, F. *The Polish peasant in America*. Chicago, Knopf, 1918, Vol. I, 27.

in connection with other states of the same individual. An attitude is a psychological process treated as primarily manifested in its reference to the social world and taken first of all in connection with some social value. . . . The psychological process remains always fundamentally a *state of somebody*; the attitude remains always fundamentally an attitude toward something." It is thus assumed by these authors that an attitude or a generality in mental life may exist latently and independent of any particular specific reference.

The power of general ideals to regulate specific activities is posited by Ross. He writes<sup>27</sup>: "The types of character held up to youth as models should be strong in point of self-control. Self-consistency, tranquillity, balance, robust independence, should be recognized as rare and precious qualities worthy of all honor and praise (p. 90). . . . Sympathy and fraternalism must, of course, constitute the emotional background to the moral life; but in the advance of individualization the true line is to awaken a sense of worth and dignity in the common man, and to hinge his social and civic duties on self-respect rather than on the spirit of the hive" (p. 91). This advice assumes, of course, that such things as "self-consistency" and "self-respect" exist as quite general ideals and are able to exert influence as such.

Whether or not one can change specific actions through an appeal to general ideals is a very urgent problem in the reformation of criminals and delinquents. It is the opinion of Steckelings<sup>28</sup> that the best way to reform is to change an individual's point of view or general orientation rather than his specific habits. If a new *Anschaauung* can be built up in the individual, the old and socially unsatisfactory habits of the individual will be dropped and new ones which are acceptable will be acquired.

Bogardus<sup>29</sup> holds that "An attitude is a tendency to act toward or against some environmental factor which becomes thereby

27. Ross, E. A. *Social psychology*. New York, Macmillan, 1908.

28. Steckelings, W. *Die Schuldfrage im Eigenen Urteil des Rechtsbrechers*. Paderborn, Schoeningh, 1929. (Reviewed in *Jl. of Crim. Law and Criminol.*, 1930, 21, 302-4, by Wm. Healy.)

29. Bogardus, E. S. *Fundamentals of social psychology*. New York, Century, 1926, 45f.

a positive or negative value. It is less innate than a desire, more clearly defined, more definitely selected by a person, more cognitive. It incorporates not only affective and cognitive but volitional elements. Attitudes are as numerous as the valuable objects in social environments. . . . An attitude . . . is disclosed by acts in relation to past acts. The real source of attitudes thus is in *personal experiences*, especially in life histories of persons."

For the sociologists Park and Burgess<sup>30</sup> "An attitude is the tendency of a person to react positively or negatively to the total situation. Accordingly, attitudes may be defined as the mobilization of the will of a person. Attitudes are as many and as varied as the situations to which they are a response. It is, of course, not to be gainsaid that instincts, appetites, habits, emotions, sentiments, opinions, and wishes are involved in and with the attitudes. Attitudes are mobilizations and organizations of the wishes with reference to definite situations" (p. 438f.). They likewise imply various levels of attitudes and believe that for sociological analysis "the attitudes . . . may be resolved by psychological analysis into smaller factors so that we may think, if we choose, of attitudes as representing constellations of smaller components which we call wishes" (p. 439).

A similar sociological definition of attitude is given by Thomas. For him<sup>31</sup> "The attitudes of a given person at a given moment are the result of his original temperament, the definitions of situations given by society during the course of his life, and his personal definitions of situations derived from his experience and reflection. The character of the individual depends upon these factors. Any mobilization of energies in a plan of action means that some attitude (tendency to action) among the other attitudes has come to the front and subordinated the other attitudes to itself for the moment, as the result of a new definition of the situation." Thus some kind of blending or integration of the various factors named is implied by Thomas.

30. Park, R. E., and Burgess, E. W. *Introduction to the science of sociology*. Chicago, University of Chicago Press, 1921.

31. Thomas, W. I. *The unadjusted girl*. Boston, Little, Brown, 1923, 241.

In the above considerations of attitude it will be seen that the *existence* of what is variously called "disposition", "set", "attitude", *etc.*, is not questioned. The validity of the assumption of general attitudes has been criticized by various writers<sup>32</sup> and it seemed to the present author that *general determining tendencies of the type posited in the above definitions, viz., attitudes, dispositions, mental sets, should, if possible, be experimentally established*. *If this could be done, then we might attempt an analysis of the relationship of such general determining tendencies to more specific processes or content in mental life.*

A demonstration in the laboratory of general attitudes and a study of their relationship to specific content have, to the best of the writer's knowledge, not been made. Several recent books mention the problem quite pointedly. Krueger and Reckless<sup>33</sup> write: "We may distinguish two sorts of fixed or permanent attitudes: concrete attitudes, which are directed toward specific objects, and *generalized* attitudes, which are directed toward a class of objects" (Italics theirs). Folsom<sup>34</sup> states: "There seem to be certain attitudes, quite independent of temperament, which hold good throughout large classes of situations: *general attitudes*. These are fewer, more limited, less general, than most people suppose, but they exist (p. 250). . . . Attitudes generalize themselves neurally by conditioning to partly similar situations" (p. 251, italics Folsom's). In his discussion of the differential barriers to repetition, Dodge<sup>35</sup> suggests the problem: "One might ask what would be the result if there were greater barriers to the repetition of specific concrete ideas than to the repetition of general ideas. The latter would obviously tend to survive and dominate consciousness while the former would tend to disappear. It is conceivable that even without direct reinforcement a single idea of very short refractory phase might

32. For a discussion of these criticisms see Ch. VI.

33. Krueger, E. T., and Reckless, W. C. *Social psychology*. New York, Longmans, 1931, 270.

34. Folsom, J. K. *Social psychology*. New York, Harper, 1931.

35. Dodge, Raymond. *Conditions and consequences of human variability*. New Haven, Yale University Press, 1931.

survive indefinitely in consciousness. It seems probable that some analogous selective process is at work participating in the control of both intellectual content and habitual acts. Not only is the barrier against repetition of the beautiful and the general apparently less than that against the ugly and the specific, but certain moral and ethical ideas with both these factors in their favor might persist for long periods of time" (p. 22f.).

But here, again, there is no substantiation of the claim and the specificists<sup>36</sup> are quite justified in leveling their attacks at such conceptions until experimental proof can be obtained in support of them. It is the writer's belief that the present investigation lends some experimental support to the suppositions made by those who have recognized empirically the existence and influence of general attitudes.

*Measurement of attitudes.* In the above survey we have noted various conceptions of one form of general determining tendency, *viz.*, attitude. Within the past few years numerous tests<sup>37</sup> have been formulated in the effort to measure such attitudes as those posited in the definitions cited. It is quite apparent that in all such attempts at measurement the existence of certain general determining tendencies is presupposed. And since it is difficult to measure such general determining tendencies as "opinions", "attitudes", "values", *etc.*, without referring in the questionnaires to rather specific situations which the compiler of the test feels represent that which he is attempting to measure, we find a second presupposition, namely, that general determining tendencies, once formed, manifest themselves consistently in specific instances.

It is these two presuppositions with which the present investigation is concerned. A few examples of these assumptions as they are seen in several of the more pertinent and significant of the recent measurements follow.

Droba<sup>38</sup> has constructed a questionnaire for the measurement

36. For a review of the specificists' contentions, see Ch. V, pp. 75-86.

37. For a bibliography concerning the measurement of attitudes and opinions, see Bain, Read, Theory and measurement of attitudes and opinions, *Psychol. Bull.*, 1930, 27, 357-379.

38. Droba, D. D. A scale of militarism-pacifism. *Jl. of Ed. Psychol.*, 1931, 22, 96-111.

of an individual's attitude on militarism. For him the term "militarism-pacifism" designates a certain attitude: "In a very broad sense it denotes a predisposition to act with reference to the issue of war *vs.* peace" (p. 96). The attempt is made to measure this particular attitude by scoring an individual's reactions to various statements which are assumed to be related to the general attitude of militarism-pacifism. Examples of the statements are: "It is almost impossible to have a large military force without being tempted to use it;" "We should have a moderate amount of military training in our schools," *etc.*

Allport and Vernon<sup>39</sup> have published a test to determine the degree to which an individual manifests certain evaluative attitudes. These evaluative attitudes are measured by noting an individual's response when he is confronted with various specific situations which are assumed to represent certain attitudes. The consistency of individuals<sup>40</sup> in their reactions to the specific instances seems to demonstrate that the questionnaire does measure internally consistent attitudes and the writers assume that internally consistent responses constitute a general attitude.

Vetter<sup>41</sup> has made a measurement of social and political attitudes in which the various items used to illustrate different types of social and political attitudes have been deliberately restricted to a fairly similar level of specificity. The results of his test show that typicality is a constant factor in the opinions of a given individual. For example, if a given individual exhibits a radical opinion in his answer to a specific statement which represents a certain controversial issue, it is highly probable that he will exhibit the same radical opinion in an answer to another specific statement which represents the same issue. Hence Vetter seems justified in assuming that such things as "liberal", "conservative", "reactionary", and "radical" attitudes do exist. He concludes from his results that "some fairly constant factors

39. Allport, G. W., and Vernon, P. E. *A study of values*. Boston, Houghton Mifflin, 1931.

40. For a discussion of the results of the test, see Allport, G. W., and Vernon, P. E., *A test for personal values*, *Jl. of Abn. and Soc. Psychol.*, 1931, 26, No. 3.

41. Vetter, G. B. *Measurement of social and political attitudes*. *Jl. of Abn. and Soc. Psychol.*, 1930, 25, 149-189.

are operating to produce these consistent differences" (p. 186). Vetter does not state, however, that such attitudes exist independently of specific situations or that these attitudes, *as such*, influence reactions in specific instances.

Thurstone<sup>42</sup> has formulated a means to measure attitudes by the psychophysical method of equal-appearing intervals. Like everyone else, he quite frankly assumes the existence of attitudes: "We must postulate an attitude variable which is like practically all other measurable attributes in the nature of an abstract continuum, and we must find one or more indices which will satisfy us to the extent that they are internally consistent" (p. 8). He is also aware of the differences in generality between attitudes and states that "The attitude variable can also be divided into class-intervals and the frequency counted in each class-interval. When we speak of 'an' attitude, we shall refer to a point, or restricted range, on the attitude continuum. *Several attitudes will be considered not as a set of discrete entities but as a series of class-intervals along the attitude scale*" (p. 14, italics mine). To measure this attitude variable, "a list of 130 statements was prepared, expressive of attitudes covering as far as possible all gradations from one end of the scale to the other" (p. 22). By the criteria of ambiguity and irrelevancy, the number of the statements was reduced until the final test consisted of 45 statements of attitudes toward the church. Although one of the criteria in selecting statements was that "one should avoid statements which are evidently applicable to a very restricted range of indorsers" (p. 57), the statements did represent varying levels of generality. For example, the statement "I believe the church is the greatest institution in America today" might be considered more general than the statement "When I go to church I enjoy a fine ritual service with good music." The authors of the test assume, however, that these statements of more specific opinions in some way represent a more general attitude toward the church.

42. Thurstone, L. L., and Chave, E. J. *The measurement of attitude*. Chicago, Univ. of Chicago Press, 1929.

The recently published study of Katz and Allport on *Students' Attitudes*<sup>43</sup> bears significantly on our problem. These authors attempted to determine various attitudes of 4,248 university students by means of a comprehensive questionnaire<sup>44</sup>. The results show that certain attitudes occurred together in the same group of students. Thus "admiration for brilliance is found most frequently among students who value personal contacts with instructors highly and least frequently among those who regard fraternity or sorority life as the most important college activity. Admiration for industry tends to go together with a high regard for religious activities, more than with other factors. Popularity finds its greatest number of admirers among those who place a high valuation upon fraternity life. . . . Comparatively few of the students who checked religious activities . . . admire popularity or athletic prowess, while of the students who checked personal contacts with instructors relatively few admire the student who is influential in extra-curricular activities. Students who held college studies to be the most important college activity include more individuals who admire industry and fewer who admire popularity and influence in extra-curricular activities. . . . Students who checked personal contacts with instructors . . . number among themselves more individuals with a high regard for intellectual values than Liberal Arts students generally . . . only 14 per cent of those emphasizing fraternity life prefer to be students who get high grades through industry" (p. 33). Also "students who set a high value upon either college studies, religious activities, or contacts with instructors have among their number relatively fewer critics of the curriculum than are to be found among those who value fraternity life or daily social contacts most highly" (p. 41).

The students' attitudes toward cheating in examinations seems to vary directly with certain other attitudes. Thus a "feeling of

43. Katz, D., and Allport, F. H. *Students' attitudes*. Syracuse, Craftsman Press, 1931.

44. Katz and Allport. *A reaction study for the measurement of student opinion*. To be published by C. H. Stoelting, Chicago.

satisfaction with studies seems to accompany . . . a greater value placed upon personal honesty in examinations" (p. 67); "Fraternity students exceed the neutrals not only in the confession of cheating in examinations, but also in the admission of copying the work of other students on assignments prepared outside of class" (p. 165); and "Acknowledged cribbing in the College of Liberal Arts seems also to be related to dissatisfaction with studies as a means for self-expression" (p. 233).

Consistency was also found between the attitudes which "individualists" as opposed to "institutionalists" (a special part of the questionnaire separated the students into these groups) tended to accept. Thus "the institutionalists were more inclined than the individualists to believe that repeated and important athletic losses would detract from the worth of the University.

. . . The institutionalists . . . showed a greater willingness than individualists to accept administrative controls of various sorts . . . there appeared a connection between the institutionalists' philosophy and the stress laid upon the social values of college life. The individualists, on the other hand, were more inclined to place emphasis upon the intellectual aspects" (p. 196f.). A positive correlation was also found between church affiliation and a belief in a Personal Creator (p. 264 ff.) and between church affiliation and a belief in miracles (p. 271ff.).

Katz and Allport contend that there is "among the mass of students an emergence, here and there, of roughly defined types. . . . It must be remembered, of course, that there is much overlapping among these different groups with respect to single characteristics; and we may speak of a 'type' only in a very loose and hypothetical way. Though the preponderance of these attitudes in the respective groups is not large, still the differences are, for the most part, significant; and the reader may be impressed with the consistency with which different attitudes seem to fit together in their respective patterns" (p. 48).

This concatenation of specific attitudes into these "roughly defined types"—which one seems forced to recognize on the

basis of the above study<sup>45</sup>—appears difficult to account for unless one posits a *general attitude* which distinguishes each type. Thus, in terms of the problem considered in this study, these types would be *attitudinal* types and each type would be characterized by or due to some more general attitude which pervades or perhaps partially determines the various patterns of the more specific attitudes, *viz.* toward scholarship, fraternities, athletics, miracles, *etc.*, measured in the above investigation.

In this brief historical survey it has been noted how various forms of general determining tendencies have been posited by different writers. Among these forms are general meaning, general attitudes, and general impressions. The first part of our task is to ascertain whether there is such a thing as "general determining tendency" and to this end several diverse experiments have been devised. Further experiments are also pursued in an attempt to throw some light upon the relations between these general determining tendencies and more specific habits, attitudes, and conscious contents.

45. An example of the degree of relationship between two of the attitudes studied by Katz and Allport is the following: "Not a single student who checked 'no chance' for self-expression in studies, and only 7 per cent of those who checked 'slight chance', preferred above other aims to be the most intellectual (but socially limited) scholars on the campus. Eighteen per cent of those who checked 'every chance', however, preferred to be the most capable and intellectual (but socially limited) scholars" (p. 60). Footnote (p. 60): "Difference in proportion between slight-chance group and every-chance group:  $11 \pm 2.63$ ."

## CHAPTER II

### THE APPREHENSION OF MEANING

*An Introspective Study Concerned with the Meaning of Words  
and with the Temporal Relationships of Meaning,  
Imagery, and Association*

#### A. PURPOSE

The following investigation and the one reported in the succeeding chapter were designed to ascertain whether or not the meaning of words is dependent upon specific reference, imagery, or association. These experiments are not intended to be studies of meaning as such. They are primarily concerned merely with the *Stellungsnahme* involved in apprehending the meaning of words or sentences. Do *Os* depend upon specific reference, imagery, or association for the comprehension of meaning or is meaning usually grasped without reference to anything specific?<sup>1</sup>

If it should be discovered that the meaning of words or sentences is grasped without reference to anything specific, we might, from this verification of the general Würzburg position, proceed with more confidence to further and more original experiments on the nature of the process of generalization.<sup>2</sup>

The problem of imagery and meaning can, of course, be traced back at least to Aristotle. However, as we are concerned more with the factual evidence of the laboratory, we shall limit ourselves here to a sketch of the recent development of the problem.

In Stout's exposition of the term "implicit apprehension" he points out that "The mental state which we call *understanding*

1. It will be assumed in the following discussion that images are "specific". True, an image may be *vague* but it is always an image of some particular thing even though the thing is not clear and detailed in the image. (Cf. James, W., *Principles of psychology*. New York, Holt, 1890, Vol. II, 48-50.)

2. As used throughout the following two chapters, the term "generality" does not necessarily mean "general attitude". More particularly it will be understood to signify the general meaning of a word or statement which is comprehended without the necessity of any form of specific reference.

*the meaning of a word* need not involve any distinction of the multiplicity of parts belonging to the object signified by it. To bring this multiplicity before consciousness in its fullness or particularity would involve the imagining of objects with sensory qualities, visual, auditory, tactful, etc. But it has often been pointed out that in ordinary discourse the understanding of the import of a word is something quite distinct from having a mental image suggested by the word. . . . There is no absurdity in supposing a mode of presentational consciousness which is not composed of visual, auditory, tactful and other experiences derived from, and in some degree resembling in quality the sensations of the special senses; and there is no absurdity in supposing such modes of consciousness to possess a representative value or significance for thought, analogous in some degree to that which attaches to images, just as revived images may have a representative value in some degree comparable to that of sense-perceptions, in spite of very great differences in respect to distinctness, vividness and quality" <sup>3</sup>.

An early objection to Stout's point of view and one which seemed supported by experimental evidence was that of Bagley <sup>4</sup>. This investigator presented his *Os* with spoken sentences which contained words with a few deleted letters and whose meaning had to be understood by inference. He asked his *Os* to "add all possible information as to the character of the mental processes which went on during the apperception of the sentence, with especial regard to the pattern of the apperceptive consciousness—the presence or absence of definite and tangible 'imagery', the concomitant affective phenomena, kinaesthetic sensations, etc." (p. 104). His conclusion was that "no conscious 'stuff' was found which could not be classed as sensation or affection, when reduced to its ultimates by a rigid analysis. Neither do our experiments show that there is in the apperception of spoken sentences such a thing as 'imageless apprehension'. They show rather that the consciousness concomitant with symbolic apperception is in a state of attention, where certain constituents are

3. Stout, G. F. *Analytic psychology*. London, Swan, Sonnenschein, 1896, Vol. 1, 78ff.

4. Bagley, W. C. *The apperception of the spoken sentence*. *Amer. J. Psychol.*, 1900, 12, 80.

clearer and more distinct and certain other constituents more obscure and less distinct; and that among the more distinct constituents, among those which occupy the focus of attention, there are always some—whether they be verbal, visual, kinaesthetic or what not—that are definitely tangible, and that can be reported by introspection" (p. 125f.). It should be pointed out, however, that Bagley noted some cases (84 out of 3,000) where references were indistinct or absent (p. 108) and that there was no definite time stated at which introspection should begin. Bagley has shown that there can be imagery and specific content in apperception but his results in no way prove that "implicit apprehension" is impossible if the right conditions are present.

In 1903 Binet published the results of his investigations and included in the book a chapter on "La pensée sans images"<sup>5</sup>. Binet believes that "Il est possible qu'à l'audition d'un mot une pensée précise se forme sans être accompagnée d'aucune image appréciable; mes deux sujets me l'ont déclaré, sans hésiter, et spontanément, et à plusieur represis. Pour bien comprendre la portée de cette affirmation, il faut donner quelques éclaircissements. Nous avons vu dans d'autre expériences que, lorsqu'une personne entend un mot, il y a un court moment où ce mot est compris, sans donner lieu à une image. De même, il suffit de lire rapidement des mots comme *maison*, *bêche*, *cheval*, pour s'apercevoir qu'on peut comprendre ce qu'ils signifient, mais ne pas les appliquer à des objets précis, et ne rien imaginer. Ce sont là des pensées sans images" (p. 83). "Elles (his two *Os*) ont d'abord employé toutes deux sans se concerter la même expression pour indiquer qu'elles avaient fait un acte de pensée qui ne consistait pas en images, elles on dit: ce sont des réflexions. Quelque-fois encore elles ont dit: des idées ou des pensées. Sur la nature de ces pensées elles ne pouvaient me donner beaucoup de détails" (p. 82).

The conclusions of Watt's more carefully controlled investigation<sup>6</sup> agree substantially with those of Binet. Watt found that his *Os* first comprehended the stimulus word and that only *after*

5. Binet, A. *L'Étude expérimentale de l'intelligence*. Paris, 1922 (A. Costes, éditeur), Ch. VI.

6. Watt, H. J. *Experimentelle Beiträge zur eine Theorie des Denkens*. Leipzig, 1904.

the word was completely understood could an association be made. "Vp. I: 'Die volle Bedeutung des Wortes war schon bei der blossen optischen Wahrnehmung da. Es ist mir nicht zum Bewusstsein gekommen, dass ich das Wort ausgesprochen hatte, oder dass die Bedeutung in irgendwelcher Vorstellung explizit gegeben war'. . . . Vp. III. . . . 'Es war keine Pause zwischen dem Erscheinen des Reizwortes und dem Verstaendnis da, doch dauerte es ziemlich lang, bis das Verstaendnis ganz da war. Mit vollem Verstaendnis war der Anstoss zur Assoziation gegeben'" (p. 151f.).

In 1911 two experiments were reported, the conclusions of which totally disagreed with each other. Miss Clarke<sup>7</sup> showed that meaning and imagery were not identical and that, to get meaning, imagery was often irrelevant; while Jacobson<sup>8</sup> concludes that there are always sensations and images where there are meanings and that these two things (processes and meanings) "are two renderings from different points of view of the same experience" (p. 569). Jacobson, however, was not careful that no time elapse between the presentation of the stimulus and the introspection. He also neglected to determine exactly what "meaning" meant to his *Os* and from the introspections one is led to believe that "meaning" had no other connotation for the *Os* (as well as for Jacobson) than the accruement of an imaginal context to a core.

On the basis of further experiments, Titchener<sup>9</sup> characterized the two attitudes which Jacobson's *Os* had assumed as "descriptive" and "logical". Titchener felt that meaning could be stated but not described. That which was described was "process".

A significant contribution concerning the temporal relations of meaning and imagery was that of Moore<sup>10</sup> in 1915. Moore obtained the reaction times for both meaning and imagery,

7. Clarke, Helen. Conscious attitudes. *Amer. J. Psychol.*, 1911, 22, 214-249.

8. Jacobson, E. On meaning and understanding. *Amer. J. Psychol.*, 1911, 22, 553-577.

9. Titchener, E. B. Description vs. statement of meaning. *Amer. J. Psychol.*, 1912, 23, 165-182.

10. Moore, T. V. The temporal relations of meaning and imagery. *Psychol. Rev.*, 1915, 22, 177-225.

instructing his *Os* before the presentation of each stimulus word whether they were to react to the meaning of the word or to the imagery which it aroused. His conclusion was that "The first thing in consciousness was reported as meaning, the second some kind of imagery" (p. 177). "The reaction time to imagery is always longer than to meaning" (p. 196).

Repeating Moore's experiment, Tolman<sup>11</sup> found one *O* who had images simultaneous with meanings. To study this further he changed the technique of the experiment and completed the investigation with 49 *Os*. The results showed that, although the majority of the *Os* reported meaning faster than images, seven *Os* did not. From this he concludes that "A compromise position, therefore, which assumes that meaning depends upon image but is itself distinct from the latter, is the one most nearly suggested by our results . . . if a large enough sample of subjects be taken, Dr. Moore's method in no way lends support to the out-and-out imageless position" (p. 138, italics Tolman's).

In reply to Tolman, Moore<sup>12</sup> states: "I did not maintain that this relationship of meaning and imagery in perception was universal. I was nevertheless inclined and still am inclined to believe, mainly on empirical grounds, that it will be very rare that individuals will be found who present genuine exceptions (p. 319) . . . one might say that while the image is frequently very useful, nevertheless, a thought process can be present to the mind without simultaneous imagery and that it is not necessary for us to draw all our meanings and thought from the contemplation of imagery. . . . That the extent to which one makes use of images, and the rapidity with which they come, should be subject to individual variations is certainly to be expected" (p. 319). Simply because Tolman found some *Os* whose imagery preceded or accompanied meaning, the existence of meaning without imagery in many individuals (the majority in both Moore's and Tolman's experiments) is in no way disproved.

11. Tolman, E. C. More concerning the temporal relations of meaning and imagery. *Psychol. Rev.*, 1917, 24, 114-138.

12. Moore, T. V. Meaning and imagery. *Psychol. Rev.*, 1917, 24, 318-322.

Weld<sup>13</sup> distinguished meaning and process by means of the reaction method. His *Os* learned unfamiliar English words by means of a visual representation of the named objects. Weld found that at the beginning of the learning process, there was a comparatively large amount of imagery. However, as the words became more and more familiar, there was less specific imagery and more meaning of the "attitudinal" sort. "As the work proceeds, under the general instruction, Object gives place to Feel, All-right, and Familiarity; meaning of a concrete and imaginal kind to those of a vague and 'attitudinal' sort" (p. 204).

In the following investigation it was planned (1) to make a more careful introspective study of the temporal relationship of meaning, imagery, and association; (2) to select two lists of stimulus words, one list to be composed of words which were more general than those contained in the other list, in order to find out whether or not there were any differences in the number of images aroused by words representing different levels of generality (or specificity); and (3) to determine the differences in the imaginal content when an immediate introspection was demanded and when a given time elapsed between the perception of the stimulus word and the report of the introspection.

#### B. MATERIAL

*Selection of words.* In choosing the two lists of words to be used in the experiment it was necessary to avoid words which were either too popular or too difficult and to employ in one list only words which were at least more general or more embracing than the words in the other list. It was also essential that the *O's Einstellung* should not be disturbed by any proper nouns, words with a sexual tinge, *etc.*

To assure the fulfillment of the second requirement, *viz.* the difference in generality, it was decided that one list of words should be for supraordinate association, the other for subordinate association. Thus for each subordinate in the first list, there

13. Weld, H. P. Meaning and process as distinguished by the reaction method. *Titchener Commemorative Volume*. Worcester, Wilson, 1917, 181-208.

was a corresponding supraordinate in the second list. With the aid of the association times reported on the Kent-Rosanoff word list<sup>14</sup>, two preliminary lists, each containing 40 words (one for supraordinate and one for subordinate association) were composed. These trial lists were then presented to outside *Os* for association. By a comparison of the individual deviations of association time for each word with the mean deviation of the *O* for a single list of words, the lists were gradually revised until they contained words to which associations could be made with a *comparatively* similar degree of rapidity. The final lists were:

I	II
For supraordinate association	For subordinate association
winter	— sparrow
table	— salmon
potato	— rat
coffee	— lieutenant
necklace	— gun
birch	— water
wheat	— Atlantic
black	— senator
dahlia	— beetle
piano	— dime
cat	— astronomy
twelve	— copper
inch	— hydrogen
orange	— supper
chemist	— sonnet
coat	— man
bread	— mutton
Germany	— moon
college	— mica
arm	— pneumonia
	season
	— furniture
	vegetable
	beverage
	jewelry
	tree
	grain
	color
	flower
	instrument
	animal
	number
	distance
	fruit
	scientist
	clothes
	food
	nation
	school
	limb
	— bird
	— fish
	— rodent
	— officer
	— weapon
	— liquid
	— ocean
	— politician
	— bug
	— coin
	— science
	— metal
	— gas
	— meal
	— poem
	— human
	— meat
	— planet
	— mineral
	— disease

### C. METHOD

1. *Obtaining word association times.* The association times were obtained by using a Dunlap chronoscope and two voice keys which were placed in the circuit so that one of them (used by the experimenter) started the chronoscope and the other (used by the *O*) stopped the chronoscope. The experimenter sat at a table on which there was the chronoscope, one voice key,

14. O'Connor, Johnson. *Born that way*. Baltimore, Williams and Wilkins Co., 1928, 225-310.

and a grey cardboard screen which protected him from the *O*'s view. The *O* sat at another table on which the second voice key was placed and at a distance of about 12 feet from the experimenter.<sup>15</sup>

Before the words for supraordinate association were presented, the *O* was given the following instructions: "You will be given a word verbally to which you are to make a verbal SUPRAORDINATE association. For example, if the stimulus word were 'gingham', you should answer 'cloth'. Respond as rapidly as possible with the first supraordinate word which occurs to you." The association times and the response words were recorded by the experimenter.

Two weeks later the *O* was presented with the words for subordination. The directions here were: "You will be given a word verbally to which you are to make a verbal SUBORDINATE association. For example, if the stimulus word were 'cloth' you might answer 'linen', 'gingham', etc. Respond as rapidly as possible with the first subordinate word which occurs to you."

2. *Obtaining immediate introspections and time for meaning.* It has been pointed out above that a recurring objection to the investigations of meaning and imagery is that the *Os* were not asked for *immediate* introspections as soon as the stimulus word had meaning for them. To obtain such introspections and also to find the time necessary for an *O* to understand the meaning of a word, the situation reported above was slightly modified by replacing the second (the *O*'s) voice key by a telegraph key and giving the *O* the following instructions: "You will be presented verbally with a single word. AS SOON AS THE WORD *means something to you* indicate this by pressing the key. Immediately as you press the key or directly afterward try to tell the experimenter as fully as possible what the word meant to you when you pressed the key. Were there any associations or images? In giving your

15. As soon as the experimenter heard the response word of the *O* he broke the circuit by means of a switch upon which his hand rested. The explosion of the *O*'s voice key of course broke the circuit first. However, in case the explosion were insufficient to activate the *O*'s voice key the chronoscope was stopped by the experimenter. This happened, however, in only a few cases and in each case the reaction time of the experimenter was subtracted from the reading of the chronoscope.

introspections it may be difficult to avoid meanings, associations, *etc.*, which may accrue to the word *after* you have begun your introspections and *while* you are speaking. Try to avoid giving these and report only the meaning which the word first had for you and which caused you to press the key."

The time was recorded which elapsed between the presentation of the stimulus word and the comprehension of its meaning as indicated by the *O*'s touch on the telegraph key. Likewise, the complete introspections following each word were taken.

This procedure was begun three weeks after the last word association experiment had been completed by the *O* and the reactions to the two lists of words were again separated by an interval of two weeks.

3. *Obtaining delayed introspections.* Another variation of the technique was planned in order to study any differences which might appear in the imaginal content or the process involved in the comprehension of a word when time was allowed to elapse between the presentation of the stimulus word and the introspections.

The *O* was given the following directions: "You will be presented verbally with a single word. A brief time will elapse during which you are to concentrate on the stimulus word. You will then be asked to report verbally to the experimenter just what the meaning of the word was to you and whether or not you had any associations or images." A word from the suprordinate list was then presented orally by the experimenter and a time interval of six seconds was allowed to intervene before the signal was given for the *O* to give his introspections. The complete introspections were recorded by the experimenter and then the other words of the same list were presented.

This procedure was begun only after a time interval of three weeks had elapsed since the *O* had completed the previous variation of the technique. After a period of two weeks, the list for subordinate association was presented.

4. *Observers.* The six *Os* used in the experiment were all advanced students of psychology. Three *Os*, Gilhousen (*Gi*), Goldthwait (*Go*), and Trimble (*Tr*) had the doctorate in psy-

chology while the other three *Os*, Messrs. Bousfield (*Bo*), Hunt (*Hu*), and Odber (Od), were graduate students in the Harvard Psychological Laboratory.

#### D. RESULTS

1. *Temporal relationship of meaning and association.* In the case of every *O* it was found that the time required for the comprehension of the meaning of a word was significantly less than the association time for that word. The following table summarizes the data. The figures in each case represent the mean time of the responses to the 40 stimulus words contained in each list.<sup>16</sup>

TABLE 1

O	Association times				Meaning times <sup>17</sup>			
	Supra-list		Sub-list		Supra-list		Sub-list	
	Times	ADs	Times	ADs	Times	ADs	Times	ADs
Bo.....	1470	254	1416	296	806	96	1061	112
Gi.....	1565	340	1489	302	772	83	872	77
Go.....	1865	210	1386	292	958	112	997	136
Hu.....	1449	243	1612	224	678	71	589	84
Od.....	1355	301	1387	276	990	105	731	123
Tr.....	1594	402	1463	366	658	101	679	106

Average "meaning" time=816 AD=101  
 Average association time=1494 AD=292

It will be noted from the above table that there are no consistent differences between the association times for words for supraordinate and subordinate association or between the "meaning" time for the two lists of words.<sup>18</sup>

16. The chronoscope used in the experiments operated on a 10 pole synchronous motor (60 cycle current) and had a speed of 720 r.p.m. The time units which are recorded here may be corrected to *sigma* by multiplying the given reading by  $\frac{5}{6}$ .

17. The meaning times for five of the six *Os* measured by means of the two voice keys (the *O* responding "now" when the meaning was comprehended) were (first figure for supra-list, second figure for sub-list): *Bo*=791, 826; *Gi*=890, 923; *Hu*=660, 742; *Od*=845, 714; *Tr*=635, 770. Average "meaning" time=769. (AD=114.)

18. This disagreement with Watt (Cf. *Experimentelle Beiträge zu einer Theorie des Denkens*, Leipzig, 95f.) is probably unimportant, because Watt's data were based on results from only three *Os*.

2. *Check on meaning times.* To determine whether the *Os* were reacting to the "meaning" of the words or to the sound of the stimulus word, the reaction time of each *O* to the sound of a stimulus word was obtained. In each case the *O*'s *Einstellung* directed to the stimulus rather than the response. The table shows the times:

TABLE 2

O	Reaction times	
	to meaning (average)	to sound of word <sup>19</sup>
Bo.....	933	308
Gi.....	822	315
Go .....	977	353
Hu.....	633	315
Od.....	860	365
Tr.....	668	410

The results show that the reaction time to the meaning of words is significantly longer than the reaction time to the known stimulus word. Hence, we may be fairly certain that the *Os* in the above experiment were reacting to the meaning of the words and not to the sound of them.

3. *Differences in content of introspections when stimulus words represent different levels of generality.* That there are individual differences in respect to the amount of facility of imagery employed is a matter of general empirical knowledge. Among the six *Os* used in the present experiment, one in particular, *Go*, made very elaborate use of imagery and for another, *Tr*, imagery was comparatively frequent in this experiment<sup>20</sup>. The other four *Os* were inclined to make less use of imagery.

It was found that those *Os* (*Go* and *Tr*) who were more naturally disposed to imagery referred (by imagery, association, etc.) but little in their introspections on the meaning of the more specific words (the list for supraordination) to the supraordinate (more general) associations which they had previously made to

19. Average of 20 trials.

20. Imagery for *Tr* is not always significant and necessary in the normal course of comprehension.

those words. For these *Os* the meaning remained specific and the references were specific. On the other hand, the introspections of these same *Os* on the meaning of the more general words (list for subordination) contained a comparatively large number of references to the subordinate (more specific) responses previously recorded. Typical introspections follow:

A. On *specific words* (list for supraordination)

1. *Immediate* introspections.

*Go*

(winter) "white field, red glow on it off to the left. A visual image."  
 (rat) "white rats with pink eyes. In a cage and one was going to the left and one to the right. They passed each other."

*Tr*

(winter) "Association of snow."  
 (coat) "image of dark coat."

2. *Delayed* introspections.

*Go*

(salmon) "An image of a cut of boiled salmon on a platter. It was surrounded by an egg sauce. Then an image of a live salmon leaping over a waterfall. Then image of a relief map of Alaska with many coves and mountains and a white sailed ship anchored near the coast. In one of the coves two airplanes were parked."

(gun) "Double barreled shot gun. This image followed by one of a rifle and then one of a disappearing gun which was about to spring. Then a row of guns appeared."

*Tr*

(coffee) "The associations of 'coffee beans', 'coffee plant', and 'tropics'."  
 (table) "Images of various kinds of brown tables."

B. On *more general words* (list for subordination)

1. *Immediate* introspections.

*Go*

(animal) "Vivid image of an animal cracker which represented a tiger."  
 (distance) "A visual image of a bluish haze with Mt. Washington just showing up through it. I knew that what was green in the image was near me while all that was blue was far from me. Meaning came simultaneously with the imagery and the knowledge that I must use a yellow filter to photograph the scene."

*Tr*

(furniture) "image of a chair."  
 (vegetable) "Association of 'cauliflower'."

2. *Delayed* introspections.*Go*

(beverage) "An image of the word printed and then immediately a printed image of 'ale'. Then image of a glass of beer and then of a line in a newspaper about 'Wines and Beers'. Final image of a jug of cider with little bubbles coming up around the cork."

(grain) "Imagery of sheaves of wheat. Then saw the picture on a cereal package of a girl carrying some wheat. Around the picture were red and blue colors which meant breakfast food. Then an image of Quaker Oats with the Quaker and all the red background. Also an olfactory image of an empty cardboard box of Quaker Oats."

*Tr*

(furniture) "An image of a chair and the associations 'oak', 'table', and 'home'."

(jewelry) "Images of a watch, ring, and various trinkets."

It will be noticed that in all of the above introspections, whether the stimulus word were specific or more general, the reference in the imagery or the association was to comparatively specific things.

For those *Os* who were less inclined to imagery and for whom words meant something quite independent of any imagery, the references were not so specific as those of *Os Go* and *Tr*. In their introspections on the meaning of the more specific words, *Os Bo*, *Gi*, *Hu*, and *Od* referred comparatively frequently to the *supraordinate (more general) responses* they had formerly made, although in some cases there was considerable reference to the specific stimulus word in the imagery and in other cases there was a complete absence of any reference. Similarly, when the introspections of *Os Bo*, *Gi*, *Hu*, and *Od* on the *more general words* are compared to those of *Go* and *Tr*, they are found to contain *less reference to the subordinate (more specific) responses*. For these *Os* specific reference seemed an unnecessary appendage in the comprehension of the meaning of the more general words.

*Typical introspections* follow:

A. On *specific words* (list for supraordination)1. *Immediate* introspections.*Bo*

(cat) "Meaning of animal."

(inch) "Thought of measure. Then a vague image of a mm. scale."

*Gi*

(inch) "First the meaning of the word and then association of 'measure'."

(orange) "Meaning and then idea of roundness and color."

*Hu*

(potato) "Thought of word 'vegetable'. At the same time there was the imageless meaning of 'food'."

(wheat) "Meaning of grain as something to eat."

*Od*

(dahlia) "The meaning of 'flower' and a slight idea of the type to which it belongs."

(piano) "Meaning of music. Then vague image of a Steinway."

2. *Delayed* introspections.*Bo*

(gun) "I thought of firearm. Later a vague visual image of a shot gun."

(Atlantic) "Thought of ocean and the continent between the oceans."

*Gi*

(wheat) "Recognized the word and its meaning. Then association of 'grain'."

(dahlia) "Got meaning and later the association of 'flower'."

*Hu*

(man) "Meaning as a two legged animal. Association of 'homo-sapiens'."

(sonnet) "Context of poetry."

*Od*

(sparrow) "Meaning first then idea of a type of birds."

(senator) "Meaning and then a flash back into my knowledge about elections which I found wasn't much."

B. On *general words* (list for subordination)1. *Immediate* introspections.*Bo*

(furniture) "Meaning or feeling of familiarity."

(beverage) "Verbal imagery 'to drink' was the meaning."

*Gi*

(This *O* got the meaning of the words and nothing else at all.)

*Hu*

(For this *O*, meaning was a feeling of recognition. Otherwise there was nothing.)

*Od*

(fruit) "Meaning of fruits of the field. No immediate reference."

(bird) "Meaning of 'generalized wing flapper'."

2. *Delayed* introspections.*Bo*

(jewelry) "Meaning long before any imagery. Then vague imagery of a bracelet on a woman's wrist."

(color) "Meaning and then thought of various theories of color vision."

*Gi*

(distance) "A sort of kinaesthetic feeling of motion. Then another feeling of distance."

(fish) "Repetition of the word and then meaning and recognition. Then a definition as 'something that swims'."

*Hu*

(furniture) "For some time there was only meaning which was unverbalized and very general. There was a readiness to be specific, however. Then thought of various uses of furniture."

(jewelry) "Vague context, which was imageless but conscious, of jewelry and its relationships."

*Od*

(fruit) "Recognition as a special kind of food. Then I tried to make a distinction between 'fruit' and 'vegetable'."

(jewelry) "Meaning then idea of ornamentation."

4. *Comparison of immediate and delayed introspections.* From the introspections quoted above and the greater number of references noted in the table when introspections were delayed, it will be observed that *the delayed introspections were more abundant in the number of images and references which they contained than those introspections reported immediately upon the comprehension of the word.*

This elaboration consisted in more detailed imagery in the case of those *Os* whose *immediate* introspections contained references of some kind, or, in the case of those *Os* whose *immediate* introspections contained only imageless meaning, the arousal of some imagery or reference when time was allowed them.

A comparison of a few of the typical introspections of each *O* for the same word when *immediate* and *delayed* introspections were given will illustrate the differences.

*Bo*

(tree) *Immediate.* "Only meaning."

*Delayed.* "Meant fir tree. Vague image of a fir tree growing in a forest. Then fleeting image of a decorated Christmas tree."

(instrument) *Immediate.* "Meaning. Nothing else."

*Delayed.* "Meaning and then a sort of kinaesthetic image of playing a bass viol."

## Gi

(coffee) *Immediate.* "Pure recognition of meaning."  
*Delayed.* "Idea of coffee then image of ground coffee with cut edges."

(necklace) *Immediate.* "Only meaning. Then a blank."  
*Delayed.* "Meaning first, then faint image of pearl necklace around a neck."

## Go

(tree) *Immediate.* "Image of a green fir tree."  
*Delayed.* "A conventional fir tree. Then image of a small oak tree in my yard. While I looked I heard auditory images of the rustling of the leaves on the oak tree. My field of vision actually moved along the front of my house to the other side of it where I saw the four apple trees and examined each one with considerable care and noted the small piece of white tape on each."

(instrument) *Immediate.* "Image of a nickel coated pair of shears."  
*Delayed.* "Image of something on a glass shelf of a surgeon's cabinet—an instrument that had two curved points. This image was replaced by a pair of draftsman's compasses which were by themselves at first and were then suddenly closed and placed in the case of green plush. I even saw the black on the velvet where the instruments had worn grooves."

## Hu

(vegetable) *Immediate.* "Unconscious, imageless meaning."  
*Delayed.* "Meaning and then verbal imagery 'one eats them'. Then very vague visual imagery of different vegetables."

(tree) *Immediate.* "A feeling of recognition. Nothing else."  
*Delayed.* "First the meaning and then vague visual image of an elm tree. Then context of trees and what trees mean and against this background the words 'bark', 'bush', and 'root', came in auditory imagery."

## Od

(color) *Immediate.* "Meaning. Absolutely nothing else."  
*Delayed.* "Meaning as a thing that one sees. This was identification described. Then an image of a spot of red."

(instrument) *Immediate.* "Only meaning."  
*Delayed.* "I knew what it was and then tried to define it—a thing used for some ulterior purpose. Then image of an instrument board."

## Tr

(winter) *Immediate.* "Association of 'snow'."  
*Delayed.* "Meaning and then definition as the season of the year when the sun's rays are oblique. Association of Whittier's 'Snow Bound'."

(black) *Immediate.* "Association of 'white' subsequent to the meaning."  
*Delayed.* "Meaning as a certain color and then associated with funeral, death, casket, disappointment."

5. *Degree of similarity of references in the immediate and delayed introspections.*<sup>21</sup> A survey of the introspections quoted above shows that even though the delayed introspection is more detailed, it does not always contain reference to the *same* specific thing referred to in the immediate introspections by the same *O* on the same word. The imaginal content in the two introspections may be different in some cases, partially similar (but more elaborate in delayed introspection) in other cases, or wholly lacking in one (immediate) introspection.

The following table indicates the number of the same references reported in the delayed and the immediate introspections of each *O*:

TABLE 3

<i>O</i>	Words for supraordinate association (specific)	Words for subordinate association (general)
Bo.....	30	19
Gi.....	24	0 (only meanings in immediate int.)
Go.....	25	32
Hu.....	10	0
Od.....	24	26
Tr.....	16	23

6. *Meaning not dependent upon imagery, association, or any form of specific reference.* In five out of six cases, *meaning always came before any imagery or other form of specific reference* and was quite independent of such reference.

The mental process characteristic of these five *Os* in the comprehension of the meaning of words is described in their introspections as follows:

21. For a more thorough study of this subject, see Chapter VIII.

*Bo.* Meaning before imagery which reinforces the meaning. . . . I first know the meaning of the word and then may get a train of imagery which exemplifies the meaning. . . . I believe that *imagery is always subsequent to the meaning* but sometimes the time interval between meaning and imagery is so short that I cannot notice it. . . . Meaning always comes first and then I recognize a developing series of meanings to some very definite meaning. As soon as I hear a word I know that all is all right, that is, I am aware of a potentiality of more definite meaning and in this sense of potentiality is the sense of familiarity.

*Gi.* I get meanings and nothing else at all. . . . Process in all of the words was the same except for a few vague images which in every instance came *after* the meaning (introspection on *immediate* meaning of the more general words) . . . recognized meaning and then sought to specify and identify it by imagery or association.

*Hu.* First I get an unconscious, unverbalized, and imageless meaning of the word and then later, perhaps, some sort of imagery . . . meaning as a feeling of recognition and a readiness to be specific . . . meaning and absolutely nothing else (from an *immediate* introspection on a more general word) . . . meaning first and this sets up a background or *Einstellung* for imagery or association, the latter following since there is a tendency to specify or illustrate (from a delayed introspection).

*Od.* Meaning comes first and then there *may* be reference to different objects, persons, situations, *etc.*, which may or may not be in the form of imagery. . . . If I get imagery it always follows meaning. . . . Meaning is immediate and a kind of identification which is followed by an attempt to define and limit it.

*Tr.* First there is meaning and identification and *then* analysis and delimitation which results in association or imagery . . . association and imagery follow meaning almost immediately. . . . I always get the meaning first and then seem to try to fit it into some aspect of my own experience.

For one *O*, *Go*, imagery was needed before the meaning of a word was actually realized and definitely recognized by him, although previous to any imagery there was the awareness of the presence of a meaning. With imagery this "awareness of the presence of a meaning" became actual meaning.

*Go.*<sup>22</sup> As soon as I hear the word a slight strain is created and I am vaguely conscious that I know the meaning of the word although the meaning is not there and fully comprehended. Then an image quite unconsciously pops into my head and I nod inwardly to myself and say "There it is. That's meaning." Then another image comes and I nod to it. This process continues and some-

22. This *O* seems to represent the type referred to by T. V. Moore (Cf. The temporal relations of meaning and imagery, *Psychol. Rev.*, 1917, 24, 322) when he says "It is quite possible, however, that some subjects will be found capable of distinguishing between meaning and imagery, in whom the development of images is so rapid that their mental pictures will usually precede their simple unanalyzed meanings. Such a fact would be significant in the study of types of individuals, but would have little bearing on the more theoretical problem of the existence of imageless thought."

times I make a story out of it. . . . I am aware of the presence of the meaning of the word before I get any images but the *actual* meaning of the word is not there until after imagery.

#### E. CONCLUSIONS

For the purposes of the present study, the important conclusions are:

1. Except in the case of *O Go*, the meaning of a word may be obtained without any specific reference to imagery, association, etc. For *Go* the full meaning of a word is not comprehended until there is some imagery present, although an awareness of the "presence of a meaning" precedes the imagery.
2. Although the general meaning of a word is always comprehended, the specific content of the reference which follows the comprehension of the meaning is not always similar at different times for the same *O*.
3. In five out of six cases the meaning of a word is always prior in time to the specific reference. For the single exception (*Go*), the actual meaning and imagery are simultaneous.
4. Those *Os* with a natural tendency for imagery refer the meaning of both specific and more general words to specific items in imagery or association. Those *Os* for whom imagery is less important in comprehension and clarification frequently refer to more general references in their elucidation of specific words and are likewise inclined to grasp the meaning of more general words without reference to anything specific.
5. Imagery becomes more elaborate as the temporal interval between the exposure of the stimulus word and the report of the introspections increases (if it does not become so great that attention lapses). Those *Os* who make no specific reference in their immediate introspections often develop imagery or association in the delayed introspections.
6. No significant differences were found between the reaction time for words for supraordinate and subordinate association.
7. The normal course of comprehension involves, first, the *general* comprehension of the meaning of a word. Subsequent to this general comprehension there is frequently some form of specific reference in the immediate introspections, while in the

delayed introspections the meaning always becomes particularized in a form of reference.

#### F. NOTE ON A SIMILAR EXPERIMENT

An experiment was designed to ascertain whether or not the meaning of very general concepts was dependent upon any type of specific reference, imagery, or association and to study the differences in the specific references, *etc.*, when introspection was immediate and delayed. The stimulus words employed were even more general and more embracing than the more general words used in the preceding investigation, *viz.*, liberty, devotion, justice, *etc.*

Each word was typewritten in capital letters on a plain white card and exposed by means of an exposure apparatus which presented to the *O* a 2' x 3' uniform grey front and completely concealed the experimenter from the *O*'s view. The delayed introspections were timed with a stop watch.

The conclusions of this experiment were similar to those of the preceding chapter.

## CHAPTER III

### THE APPREHENSION OF MEANING (*Continued*)

#### *An Introspective Study on the Meaning of General and Specific Statements*

##### A. PURPOSE

The experiment reported here was designed to study (1) any significant differences in mental content which might be noted when individuals were presented with *statements* which represented different levels of generality, (2) differences in the type or amount of reference aroused when introspections were demanded immediately and when introspections were delayed, and (3) the normal course of comprehension involved in the understanding of sentences.<sup>1</sup> The present investigation differs from the preceding study in the type of material used, *viz.*, in this study statements instead of words are employed as stimuli.

##### B. METHOD

1. *Material.* To satisfy the first requirement, *viz.*, that the statements presented to the *Os* should represent different levels of generality, a list of 33 comparatively general statements was composed and then a list of 33 *less* general statements was compiled. In order to be assured that the second list contained more specific statements than the first list, each statement in the second list had some specific reference to the general subject matter with which one of the general statements in the first list was concerned,

1. In his study *Über das Verstehen von Worten und Sätzen* (Cf. *Zeitsch. f. Psychol.*, 1905, 40, 225), C. L. Taylor found that "Für das Verständnis von anschaulichen Sätzen kann die Entwicklung anschaulicher Vorstellungen nutzlich sein" (235). He also notes "so ist dies doch nicht in allen Fällen notig . . . die häufige, wenn auch nicht notwendige Erleichterung des Verständnisses anschaulicher Sätze durch anschauliche Vorstellungen in vielen Fällen wegfällt, wenn die Gegenstände, auf welche sich die Sätze beziehen, schon bekannt sind" (236). Taylor's investigation concerned the differences in imaginal content when statements or passages were more or less familiar to the *O* and he was, of course, not interested in the relative generality of his material.

although, for the purposes of the investigation, it was quite immaterial whether or not the specific statements particularized the more general statements. For example, one general statement in the first list was "The things were high priced" and one specific statement in the specific list was "Eggs selling at 90 cents a dozen".

A third list of 33 entirely irrelevant statements was also composed and these statements were interspersed with those in the other two lists to insure naïveté on the part of the *O*.

Each statement in each list was then typewritten on a 3" x 5" white card and the 99 statements arranged in random order. The statements were presented to the *O* by means of the exposure apparatus.<sup>2</sup>

The three lists of statements follow:

*General*

This is a period of depression.  
He is a devout churchman.  
This will be hard to beat.  
She was a typical Southerner.  
Study without thought is vain.  
J— was anxious to acquire knowledge.  
The family had puritanical morals.  
Safety first is a good policy.  
They always have hard luck.  
He is a good sport.  
The things were high priced.  
She kept busy doing nothing.  
He had a very genuine love of Nature.  
He was very neat appearing.  
Her interests were primarily social.  
He seemed full of ambition.  
It was unsafe for driving.  
She was very old fashioned.  
It proved good for nothing.  
He was out of work.  
He had socialistic inclinations.  
They were out of debt.  
It is worth its price.  
He was a very close friend.  
May be used for cooking.  
He was fond of good music  
Must be handled with care.  
She is fond of animals.  
He was called "the great lover".  
She sought beauty in all things.

2. For a description of the exposure apparatus see p. 36.

The President has power and authority.  
He seemed care-free and unselfish.  
He was a man of good sense.

*Specific*

He was unshaven and had a ragged suit.  
He teaches a Sunday School class.  
He got all "A's" on his Examinations.  
She invited three friends to dinner.  
A— has a Phi Beta Kappa key.  
He spent the whole semester with symbolic logic.  
M—believed it sinful to buy Sunday newspapers.  
He stopped his car before crossing the track.  
Yesterday he broke his arm.  
O— played handball an hour yesterday.  
Eggs selling at 90 cents a dozen.  
She hurried to the party.  
Two men in a canoe are on the river.  
He prefers to wear his old wrinkled suit.  
She prepared Thanksgiving dinner for 20 poor children.  
He worked until very late last night.  
Capacity of this bridge not over six tons.  
She wore a thick black hat.  
The thing was put in the attic.  
20,000 jobless in London bread line.  
He made a speech defending old-age insurance.  
He paid all his bills last month.  
The tire lasted for 25,000 miles.  
J—asked for a raise in salary.  
This meat inspected by U. S. Food Commission.  
K—is fond of Bach cantatas.  
This package contains glassware.  
She stroked the dog's head fondly.  
The kiss was long, silent, passionate.  
She watched autumn leaves fluttering in the rain.  
Governor vetoes proposed tax-reform bill.  
He gave the man \$10.  
He does not believe in the virgin birth.

*Jokers*

Think of the names of three makes of typewriters.  
A million millions is an English billion.  
Add two hundred sixteen and forty-four.  
Is El Paso, Texas, farther west than San Francisco?  
The dates of the thirty years' war were 1618-1648.  
Es freut mich, Sie kennen gelernt zu haben.  
Humpty-Dumpty sat on a wall.  
Is Planck a physicist or an astronomer?  
Cleveland was twice President of the U. S.  
Leonardo da Vinci invented the wheel-barrow.  
In what century did Vesalius the anatomist live?  
The Danube flows into the Black Sea.  
Ich habe den Schlüssel vergessen.  
What is the square root of 225?

irrelevant for narrative

Confucius died in 478 B.C.  
 Verlaine was a French symbolic poet.  
 Do you read the new Freeman?  
 Les pensées, se rencontrent-ils dans la conscience.  
 Six is to nine as eight is to —.  
 Codfish oil contains vitamin "D".  
 A tomato is a fruit.  
 The product of twelve times nine is —.  
 Fluorine, bromine, iodine, and chlorine are halogens.  
 Rabelais was a famous physician.  
 The king of Siam has hundreds of children.  
 There are four billionaires in the world.  
 Nous croyons avoir mis hors de doute —.  
 Napoleon built the Simplon Pass road in 1800.  
 The early American Indians did not have horses.  
 The sum of the angles of any triangle is —.  
 Goethe was threatened with tuberculosis all his life.  
 Turkey adopted Latin characters in 1928.  
 Robin is to bird as cat is to —.

2. *Two sections of the experiment.* To ascertain whether or not an increase in the time allowed for introspection made any significant difference in the type or amount of reference contained in the reports, the investigation was divided into two parts.

In the first section, *immediate introspections* were obtained on the meaning of the statement and the mental processes involved. The *Os* were given the following directions: "You will be presented visually with statements. The shutter will remain open only long enough for you to read the statements. As soon as the shutter closes you are to give the experimenter your introspections verbally and as fully as possible. What did the statement mean to you? Were there any images or associations aroused? In reporting the introspections, try to avoid any meanings, images, or associations which occur to you *after* you have begun to speak." Each statement was then exposed for an instant and the complete introspections of the *O* on the statements contained in the first two lists were recorded.

The *delayed introspections* were obtained in the second part of the experiment. Three weeks after an *O* had completed the first part of the experiment he was given the directions: "You will be presented visually with statements. Try to focus your attention on the statement, its meaning to you, and any associations or images that it calls up. The shutter will remain open for a brief period. When the shutter closes you are to give the experi-

menter your complete introspections verbally and as fully as possible. If you feel that it would be easier to report your stream of consciousness in fragmentary, disjointed phrases it will be quite all right. Complete, well organized sentences are not necessary although, of course, not objectionable." The shutter remained open for a period of eight seconds and then the complete introspections of the *Os* for the two lists of words were again recorded.

3. *Observers.* The *Os* who took part in the experiment were Drs. Gilhouse (Gi), Goldthwait (Go,) and Trimble (Tr); and Messrs. Bousfield (Bo), Hunt (Hu), and Odbert (Od), graduate students of psychology in Harvard University.

#### C. RESULTS

##### 1. *Differences in content of introspections when statements represent different levels of generality.*

a. For *Os Bo, Gi, Hu, Od, and Tr.* In the introspections of all of the *Os* except *Go*, there was less specific reference reported in the conscious content when the stimulus was a general statement than when the stimulus was a specific statement. The meaning for these *Os* for both the more general and more specific statements frequently remained very general and abstract and contained no reference whatever when immediate introspections were demanded. It will likewise be noted that in some of the introspections on the more specific statements there is very general and abstract reference.

A few typical introspections of each *O* on the meaning of both the general and specific statements follow:

##### *Bo*

*Specific statements.*

*Immediate.*

(She watched autumn leaves fluttering in the rain.)

Meaning first and then imagery of a girl under a tree with leaves all around her.

(This meat inspected by U. S. Food Commission.)

Meaning that it was all right. Subsequent image of a ham.

(He stopped his car before crossing the track.)

Meaning of the statement and then image of a car at a railroad crossing.

*Delayed.*

(He was unshaven and had a ragged suit.)

Image of a shabby looking man asking my landlady for work. General disapproval of present economic system and capitalism. Wondered how much the depression was due to it.

(20,000 jobless in London bread line.)

Vague imagery of long serpentine line of people before some edifice. Thought that conditions are bad here also.

(She prepared Thanksgiving dinner for 20 poor children.)

Imagery of a long table and children around it. One child was particularly distinct and had a large, dirty face. He was putting a spoon in his mouth.

*General statements.**Immediate.*

(She was a typical Southerner.)

That means that she has a certain attitude toward negroes. Then I thought of a recent lynching in Missouri. No imagery.

(Study without thought is vain.)

Here I got only meaning. There was no imagery either accompanying or immediately subsequent to the meaning.

(He was out of work.)

Meaning and nothing else.

*Delayed.*

(Study without thought is vain.)

Thought of courses in which I had to memorize lots of material. Meant that a large percentage of my study was vain.

(He seemed full of ambition.)

Meaning of the statement and then vague imagery of a person who seemed alert. Thought that impressions of that kind are unreliable and that the genuinely industrious people do not display their ambition.

(He had socialistic inclinations.)

Thought of Sacco-Vanzetti case. Many students are interested in Socialism but I wonder how many of them have made an adequate study of it as an economic proposition. People are always attracted to things which oppose those individuals occupying high positions in society.

*Gi**Specific statements.**Immediate.*

(In the immediate introspections this *O* got only meaning which culminated in a sort of motor response of "Ugh", signifying to him "Yes, I've got the meaning." There was no imagery or other reference.)

*Delayed.*

(This meat inspected by U. S. Food Commission.)

Meaning and then image of a blue stamp on a brown surface which represented a sausage. Faint visual image of a restaurant kitchen.

(20,000 jobless in London bread line.)

Auditory image of someone shouting this on the street.

(He worked until very late last night.)

Image of a man working in dirty overalls.

*General statements.*

*Immediate.*

(Process same as that involved in the immediate introspections for the specific statements. There was only meaning.)

*Delayed.*

(Study without thought is vain.)

Meaning. Then thought that it was true. General feeling that this was a moral precept. No detailed references.

(He seemed care-free and unselfish.)

I got the meaning and then tried to find a visual image of "care-free" as an attitude but I couldn't. Lots of meaning, however.

(He was a man of good sense.)

What does good sense mean? I got no answer except "That's a matter of judgment."

*Hu*

*Specific statements.*

*Immediate.*

(This *O* got only an unconscious meaning which remained quite vague and inarticulate.)

*Delayed.*

(M—believed it sinful to buy Sunday newspapers.)

It is sinful to buy some newspapers any day of the week. Vague, hazy thought of evils of the press. Tremendous content and significance of meaning that I can't translate into any terms.

(He was unshaven and had a ragged suit.)

Thought that he was probably out of work. Lots of people out of work. Visual image of men on Massachusetts Avenue who were out of work. It is a serious matter. Sympathy extended and a context of sorrow that man's majesty so debased that he has to ask for work.

(He prefers to wear his old wrinkled suit.)

Thought of my own tendency to wear old clothes.

Then thought of Darrow's fondness for old clothes and I got a visual image of him and recalled his remark "I don't really sleep in my clothes like people think I do."

*General statements.*

*Immediate.*

(*O* got only meaning. No reference of any kind.)

*Delayed.*

(He is a devout churchman.)

Thought that he was a devout damned fool. I know I am prejudiced and I realize it is foolish. I must have a religious complex. There was lots of churning and organizing here and eduction of unconscious relations but I got no images or associations although I feel that something is going on.

(It is worth its price.)

What is worth? What is price? Can't consider them in monetary sense. They are only personal values. These considerations tailed off into very general terms.

(He was a very close friend.)

Vague background of the meaning of friendship. Then I thought of two of my particular friends. Thought it would be terrible to have a "close" friend—this shouldn't happen in real friendship. Play on the word "close" was in the focus and was in no way connected to the background or fringe in which the meaning of friendship was being considered.

*Od*

*Specific statements.*

*Immediate.*

(He stopped his car before crossing the track.)

Meaning and then an image of a car before a railroad crossing.

(Two men in a canoe are on the river.)

Meaning and an image of men in a brown canoe.

(Capacity of this bridge not over six tons.)

Meaning and nothing else.

*Delayed.*

(She watched autumn leaves fluttering in the rain.)

Thought of the mood of the affair. Then thought of the leaves on a brick sidewalk in Cambridge. Then recalled the leaves at home that I didn't rake and decided that they looked better on the ground than if they were raked.

(This package contains glass-ware.)

Meaning and then thought of a barrel of china in our house and also of a box of picture frames.

(Governor vetoes proposed tax-reform bill.)

Wondered who was the governor? What was the bill? Why the veto? Then thought of governor's power to veto in general.

*General statements.*

*Immediate.*

(O got only meaning. There was no form of reference in any of the introspections.)

*Delayed.*

(J—was anxious to acquire knowledge.)

Why was he? Perhaps an instinct of curiosity, was there some need for cognizance. Did he want knowledge for power, for itself, or for what?

(She kept busy doing nothing.)

Don't we all? Is it better to do nothing to keep your mind off of the fact that you never can do anything anyway? Did she as an individual realize this?

(It is worth its price.)

Must have had worth other than its price. A few things worth their price. If it was worth its price either everybody or nobody would be satisfied. This is bad logic.

## Tr

## Specific statements.

## Immediate.

(This *O* always got meaning first and then sometimes a general feeling about the statement. Only three images reported in the 33 introspections.)

## Delayed.

(M—believed it sinful to buy Sunday newspapers.)

Meaning and then an image of a Puritan all dressed up in a black hat and a long black dress. She had a rainy-day looking face.

(He stopped his car before crossing the track.)

Thought of a comment of a friend who had just been promoted and who said when we were approaching a bridge, "You had better stop and let me out." No imagery but general pleasant, mirthful feeling.

(She stroked the dog's head fondly.)

Image of a Scotch collie. It was yellow-brown and had big ears and a pleasant face. Saw a hand stroking its head from the top down over its ears.

## General statements.

## Immediate.

(*O* got only meaning in every case except one in which there was vague visual imagery.)

## Delayed.

(She was a typical Southerner.)

Thought of southern brogue and southern dress in a very general way. Context of being old-fashioned and aristocratic. All general and vague. I have had experience with so many southerners that I don't know a typical one.

(They always have hard luck.)

They must have the wrong technique. Chance is not always against a person. It is largely a matter of controlling circumstances.

(He was a very close friend.)

No imagery. What is a close friend? One who stands by one any time, etc. The general meaning was unanalyzable.

b. For *O Go*. It has been pointed out in the preceding chapter that for *O Go* the real conscious meaning of a word is dependent upon some type of imagery. In the comprehension of statements, similar use of imagery is made by *Go* and hence the meaning of either a general or a specific statement comes only with imagery. Typical introspections follow:

## Specific statements.

## Immediate.

(Eggs selling at 90 cents a dozen.)

Visual image of a sign on white cardboard. The letters were purple and I knew had been stamped by hand. Sign read "Eggs—90¢." I knew the sign was resting on a sloping apple box, although I could not see the box.

(This package contains glass-ware.)

Image of red lettering on white paper. The paper was pasted on a corrugated box. I saw only half the box.

(He worked until very late last night.)

Visual image of an old-fashioned student's lamp. It was on a table and was seen above the head of a student bending over the table.

*Delayed.*

(She wore a thick black hat.)

Conventional picture of a lady of past generation with thick black bonnet, long dress, and a basket on her arm. She was going to a store.

(Two men in a canoe are on the river.)

Image of two Indians with feathers in their hair paddling a canoe. After that the same canoe with two stalky white men, each with a moustache, grey flannel shirt, and pipe. Banks of the river were dark green.

(J—asked for a raise in salary.)

Vague argumentation in the background (expressed in symbols) about the advantage of being your own boss or hoping to get a raise by simply being efficient and not trying to advance yourself. All this was a very vague but meaningful background. In the focus was an image of a middle-aged man standing in front of a mahogany desk at which a beefy looking capitalist was sitting. The capitalist wore a blue suit. The employee was holding a hat and was wearing a medium colored suit. His hair was just beginning to turn grey. He asked for the raise and I knew he was refused.

*General statements.*

*Immediate.*

(Safety first is a good policy.)

Images of three signs right after each other. First was orange and black and said "Motorists spare our children"; second was yellow and black and I couldn't make out the letters. The third was a yellow sign on a traffic signal and said "Stop on red."

(The family had puritanical morals.)

Image of two puritans sitting at either end of a long bench.

(She sought beauty in all things.)

Image of a low-backed, semi-circular chair in which a woman was sitting and gazing at a marble figure.

*Delayed.*

(The family had puritanical morals.)

Image of two women and a man just outside the door. They had puritan costumes on and were busy and stern. Imageless thought or something involving validity of our traditional picture of puritan customs and morals. This occurred through a meaningless complex of words which seemed to refer to the literature on the subject.

(He is a good sport.)

Brief image of a pole-vaulter. Then the realization of the meaning of the words. Resentment against the tradition that whatever the

situation, one must be a good sport. Verbal-auditory imagery of a newspaper item that the Drys are not good sports. Visual image of a part of Massachusetts Avenue and my thinking when there yesterday that the business of being a good sport is a silly argument because it has nothing to do with the actual wet-dry issue.

(He was very neat appearing.)

Image of a particular dark-appearing man at Filene's. He was very neatly dressed with colored shirt, tie, and suit, and yet all the colors harmonized well. Along with this was a philosophizing by means of vague shifting of letters and words in the background and about twenty or thirty feet in back of the man who always was in the focus of the picture. The philosophizing was concerned with neatness, cleanliness, *etc.*, as good and bad symptoms. Both the man and the reflections went on at the same time.

c. *Tabular summary of contents of introspections on general and specific statements (both immediate and delayed).* The following table summarizes the differences in the type and amount of content revealed in the introspections on the 33 general and the 33 specific statements.

TABLE 4

O	Images		Specific <sup>3</sup> references		Meaning only		General ideational references	
	General statements	Specific statements	General statements	Specific statements	General statements	Specific statements	General statements	Specific statements
Bo.....	26	<b>34</b>	10	<b>13</b>	30	<b>14</b>	11	<b>18</b>
Gi.....	23	<b>36</b>	10	<b>8</b>	33	<b>33</b>	1	<b>2</b>
Go.....	90	<b>92</b>	2	<b>1</b>	0	<b>0</b>	4	<b>3</b>
Hu.....	10	<b>16</b>	22	<b>31</b>	33	<b>33</b>	15	<b>17</b>
Od.....	1	<b>18</b>	23	<b>34</b>	33	<b>28</b>	21	<b>18</b>
Tr.....	9	<b>15</b>	21	<b>24</b>	32	<b>30</b>	15	<b>12</b>
Totals...	159	<b>211</b>	86	<b>111</b>	162	<b>138</b>	67	<b>70</b>

3. The term "specific reference" as used here is understood to mean some ideational reference (not imagery or association) to a relatively specific thing or, situation. By "general reference" is meant some ideational reference (not imagery or association) to a relatively general concept or vague and abstract mental content.

*An analysis of the above table shows:*

1. There is more imagery reported in the introspections on the specific statements than in the introspections on the general statements.
2. Pure meaning without imagery is reported and occurs most frequently in the introspections on the general statements.
3. Specific statements frequently arouse more general references.

2. *Comparison of the immediate and delayed introspections.* In the case of each *O* the delayed introspections contained more reference in the form of imagery or ideational content than did the immediate introspections. Similarly, those *Os* (*Gi*, *Hu*, *Od*, and *Tr*) who reported only meaning or meaning and a very few vague references in their immediate introspections, developed considerable reference when time was allowed for introspection on the statements.

A few typical immediate and delayed introspections of each *O* on the same statement will illustrate the differences:

*Bo*

(This will be hard to beat.)

*Immediate.* First the meaning and then wondered what will be hard to beat. No imagery.

*Delayed.* Meaning and then image of a man beating carpets outdoors. Then image of a woman beating an egg in the kitchen.

(Governor vetoes proposed tax-reform bill.)

*Immediate.* Thought vaguely of reform in tax system.

*Delayed.* Thought it would be a good idea if state income tax in Massachusetts were changed and the blanks were made a little simpler. Recalled complaints about these blanks.

(He seemed full of ambition.)

*Immediate.* Meaning only.

*Delayed.* Meaning and then thought that the term could be one of praise or of disgust. Visual imagery of Byrd and incidents in his expedition.

*Gi*

(Safety first is a good policy.)

*Immediate.* Only meaning.

*Delayed.* Got the meaning and then an image of a sign on a street. Thought vaguely of insurance.

(He got all "A's" on his examinations.)

*Immediate.* Meaning. Nothing else.

*Delayed.* Meaning and a repetition of the phrase. Then faint image of a red "A" on top of a blue book page.

(This package contains glassware.)

*Immediate.* Meaning. No imagery or association.

*Delayed.* Meaning and then a succession of visual images: first red labels on wooden boxes which were marked "careful", "dangerous"; then image of a piece of glass in a wooden box.

*Go*

(He is a devout churchman.)

*Immediate.* Image of a priest in black. Vague red face. Somewhere the feeling of rigidity.

*Delayed.* Image of an ordinary Catholic priest with his collar. A portly man with a mild expression. Then image of Cardinal O'Connell in his red vestments. Priest in the background all the time. Then images of two of our cooks who have been Catholics and who tried to convert my wife. Priest still in background. Images of two acquaintances, friends of my father-in-law, who were Catholics. They were in a little garden near their house.

(He had a very genuine love of Nature.)

*Immediate.* Image of a man sitting beside a rock near a brook. There was a little green in the image which began to be filled in when the shutter dropped.

*Delayed.* Vague figure of a man walking up a sloping path from some fields and into the woods. There was sunlight, birds, and all was very pastoral and pleasant and inviting—so much so that I basked in the scene during the rest of the exposure.

(He was out of work.)

*Immediate.* Visual image of a man on a park bench. His overcoat was pulled up around his chin and his cap was over his face.

*Delayed.* Image of a figure on a bench in the Common. He was unshaven and dressed in a shabby overcoat and held a newspaper in his hand. He had drunk considerably, I knew. Two squirrels were chasing each other and racing behind the bench on which he was sitting. Then the squirrels rushed up a tree.

*Hu*

(Governor vetoes proposed tax-reform bill.)

*Immediate.* Wholly unconscious meaning and a contemporaneous feeling.

*Delayed.* Meaning and then I thought it was a Republican governor vetoing a bill which had been passed by a Democratic House. Wondered if Governor Allen has ever done anything positive.

(Capacity of this bridge not over six tons.)

*Immediate.* Meaning only.

*Delayed.* Meaning and then a background of vague imagery of some New England bridges. In focus was the argument, why put up such a sign anyway because it is seldom needed and nobody would pay any attention to it.

(He made a speech defending old-age insurance.)

*Immediate.* Only meaning.

*Delayed.* Thought of an elderly man whom I once heard speak on the subject. Recalled his talk and its implications and thought that he had made an important subject seem trivial.

*Od*

(She watched autumn leaves fluttering in the rain.)

*Immediate.* Meaning and some very vague imagery of girl watching leaves.

*Delayed.* Thought of the mood of the affair. Then thought of the leaves on a brick sidewalk in Cambridge. Then recalled the leaves at home that I didn't rake and decided that they looked better on the ground than if they were raked.

(He teaches a Sunday School class.)

*Immediate.* Meaning and nothing else.

*Delayed.* Thought of a Sunday School in Rocky River where I used to live. Then a visual image of large Bible pictures given on birthdays. Picture of Christ on a blue background was the one I always wanted and never got. Image of the dog who used to walk to Sunday School with us and kept his nose up to the window all the time Sunday School was going on. Then thought of another Sunday School—this time an Episcopalian one. Recalled how we used to play during the hour. Then an image of a Congregational Church and the balcony around one of its rooms. Then remembered a Christian Science Sunday School where a bee bit me on the inside of the mouth.

(She sought beauty in all things.)

*Immediate.* Only meaning.

*Delayed.* Meaning and then thought that she probably sought beauty only in herself. Thought of Plato's absolute, abstract Beauty and wondered if he found his argument in some older teachings.

*Tr*

(Eggs selling at 90 cents a dozen.)

*Immediate.* Only meaning.

*Delayed.* First the meaning and then the thought I won't buy them. I'll take cold storage ones as the others probably aren't fresh anyway. Pictured myself at the market yesterday.

(J—asked for a raise in salary.)

*Immediate.* Nothing but the meaning of the sentence.

*Delayed.* Thought of a man dissatisfied with work. Maybe he has his reasons. Maybe he is supported by an institution. Best way to get a raise is to work well. Faint image of a fellow who didn't know much and who was approaching his boss. I simply felt that the man was worth little.

(She prepared Thanksgiving dinner for 20 poor children.)

*Immediate.* Meaning and vague favorable opinion.

*Delayed.* Thought that she wasn't poor. May have been working for a philanthropic institution. Interested in social work. Wondered if they were in her home. How did the children feel? Thought it would be best if the conditions of living were not too far different from those of the children invited.

The differences between the amount of reference reported in the immediate and delayed introspections is summed up in the following table:

TABLE 5

O	Images		Specific ideational references		Meaning only		General ideational references	
	Imme-diate	De-layed	Imme-diate	De-layed	Imme-diate	De-layed	Imme-diate	De-layed
Bo.....	14	46	4	19	28	16	6	23
Gi.....	0	59	0	18	66	0	0	3
Go.....	72	110	0	3	0	0	0	7
Hu.....	0	26	0	53	66	0	0	32
Od.....	5	14	0	57	61	0	0	39
Tr.....	4	20	0	45	62	0	0	27
Totals...	95	275	4	195	283	16	6	131

An analysis of the above table shows:

1. The delayed introspections contain a greater number of references, whether the references are in imagery or are imageless ideational content.
2. Except for one *O* (*Bo*) of the *Os* who reported the meaning of the statements without any form of reference, the report was in the immediate introspections only. For the single exception there were fewer meanings without any reference in the delayed introspections.
3. *Mental processes involved in the comprehension of the meaning of statements.* Except in the case of *Go*, the compre-

hension of the meaning of a statement is in no way dependent upon any form of conscious reference. For *Go* there is the awareness of the presence of a meaning before there is any reference but reference (imagery) is needed to bring out the exact and full meaning.

The normal courses involved in the comprehension of the meaning of statements for each *O* are shown in the following accounts taken directly from their introspections:

*Bo.* Meaning always comes first. Then there may be some reference to a phase of the meaning or some imagery which illustrates it. Meaning comes almost immediately and is not necessarily accompanied by imagery.

*Gi.* First I get the meaning which culminates in a sort of motor response of "Ugh" (signifying "Yes, I've got the meaning"). This response is a sort of assent or stop movement. Some time later imagery may appear.

*Go.* The exposure of the statement gives me an instruction to get that or do something about it. Then I am vaguely aware of the presence of a meaning although I do not actually comprehend the full meaning of the statement. Immediately an image pops into my head and I know that that image means what the legend stated. If the image were presented to me otherwise I should probably not attach the same meaning to it. In other cases, meaning seems to be in the imagery itself and not so much inference is needed.

*Hu.* Almost immediately I get a wholly unconscious meaning. There is always tremendous content and significance of meaning which I am usually unable to develop for fear that something might go wrong if I tried to formulate it verbally. The actual meaning is untranslatable. Following this feeling of meaning, I sometimes get imagery or detailed examples of the meaning but these are unnecessary in my understanding of the meaning.

*Od.* There is meaning to all of the statements. This meaning comes almost immediately and is not necessarily accompanied by imagery.

*Tr.* Meaning always comes first. Then sometimes I get an opinion about the statement and this opinion takes the form of a general feeling. I can later reduce the meaning to imagery but this takes concentration and time and seems unessential.

#### D. CONCLUSIONS

As was the case in the preceding chapter, the presentation of the results in the present study has so largely anticipated the final conclusions to be derived from the investigation that only a brief summary seems essential.

The important conclusions are:

1. Except in the case of *Go*, any form of reference is entirely unnecessary for the comprehension of a statement.
2. For five out of the six *Os* the actual meaning of a statement is understood before any form of reference occurs. For the

sixth *O*, *Go*, there is "an awareness of the presence of a meaning" before there is any reference but a specific form of reference, *viz.*, imagery, is necessary before the full meaning of the statement is revealed.

3. There is more imagery and specific reference reported in the introspections on the specific statements than in the introspections on the general statements.

4. The reports of pure meaning without any form of reference occur most frequently in the introspections on the general statements.

5. All types of reference (imagery, specific reference, and general reference) become more elaborate as the temporal interval between the exposure of the statement and the report of the introspections increases (if it does not become so great that attention lapses). Those *Os* who make no reference in their immediate introspections often develop imagery or specific or general reference in the delayed introspections.

6. The *normal* course of comprehension involves, first, some general and meaningful attitude which is aroused by the statement and, second, which *later* may exhibit itself in some form of specific or general reference, the former type of reference being the more frequent.

## CHAPTER IV

### A COMPARISON OF THE CAPACITIES OF GENERAL AND SPECIFIC DESCRIPTIONS TO PRODUCE VIVID UNDERSTANDING

#### A. PURPOSE

The following study of the relation between generality and specificity is an attempt to ascertain (1) whether or not a description written only in very general terms can be understood without reference to anything specific; (2) which type of concept (general or specific) is conducive to the most vivid understanding; and (3) what arrangement of general and specific statements will secure the optimum comprehension.

#### B. METHOD

The material used consisted of a series of personality sketches. Three sketches for each of 12 individuals were made. These three sketches for a single personality varied in their degree of specificity. One sketch (*g*) was written altogether in very *general* terms and was designed to arouse a very general attitude in the *O* towards the personality described; another sketch (*m*) was composed of items of *medium specificity* and was intended to arouse a less general attitude in the *O*; while the third sketch (*s*) was made up of items even more *specific* than those in *m* in order to form very specific attitudes towards the personality sketched.

The total material presented to each *O* contained 36 personality sketches, three sketches of 12 different individuals; three of whom were described with three characteristic concepts; three with 7 such concepts; three with 12 concepts; and three with 30 concepts. There were thus three sketches representing each of the following combinations:

Degree of Specificity		
<i>Length</i>	<i>3g</i>	<i>3m</i>
	<i>7g</i>	<i>7m</i>
	<i>12g</i>	<i>12m</i>
	<i>30g</i>	<i>30m</i>
		<i>3s</i>
		<i>7s</i>
		<i>12s</i>
		<i>30s</i>

Examples of sketches depicting a personality on the three levels of generality are given below:

A. Using three concepts

1. *General*

P—Is brilliant, sociable, unselfish.

2. *Medium specific*

P—Was valedictorian of his class in college. Enjoys parties. Is saving his money to send his brother through college.

3. *Specific*

P—Received an A in a final examination. Enjoyed his Commencement Ball. Last week put \$15 in the bank to help send his brother through college.

B. Using seven concepts

1. *General*

Mrs. B—Is a very generous lady whose extremely social nature finds its outlet in church work. She enjoys power and has rather superficial intellectual interests. She is very good natured and free from worry.

2. *Medium specific*

Mrs. B—Helps support various charities. Is president of local woman's club. Takes private French lessons. Teaches a Sunday School class. Always smiles. Leaves things undone if they interfere too much with her pleasure.

3. *Specific*

Mrs. B—Attended a meeting of a woman's club yesterday afternoon. Last Sunday gave \$10 to the Woman's Foreign Missionary Society. Taught a Sunday School class last Sunday. Got a book from the library today. Told a Scotch joke in conversation recently. Yesterday the lawn around her home needed watering but she didn't ask anyone to do it and didn't bother to do it herself. Last week bought a dress like Mrs. M's.

C. Using twelve concepts

1. *General*

Mr. H—Has all the homely virtues generally associated with a conservative, law-abiding citizen of the lower middle class. He is intensely religious and has set up for himself and family an almost puritanical code of morals. Although most of his friends are well-off or hold responsible positions, H is quite content with his lot and has no ambition to gain power or wealth. He has had little formal schooling but is a wide reader and is well informed. His home life is a very happy one.

2. *Medium specific*

Mr. H—Is a post-office clerk in a large city. Enjoys to ride a bicycle to work. Teaches a Sunday School class in a Methodist Church. His favorite reading is the National Geographic Magazine and religious periodicals. Believes that dancing and drinking are sinful. Always spends his evenings at home. His grammar is flawless and he enjoys correcting the grammar of friends.

*3. Specific*

Mr. H—Yesterday worked in a post-office in Cleveland sorting mail. Rode his bicycle to work today. Last Sunday taught a Sunday School class. Stayed home and read an article in the National Geographic last night. Refused to let his son go to a dance three evenings ago. Voted against Smith because he was a wet. Corrected his wife when she said "between she and I" yesterday.

**D. Using thirty concepts***1. General*

Mr. L—Is a well-kept, athletic man who represents some of the finer qualities of his Jewish race. He is extremely self-sufficient with a strong desire for power. In his unwillingness to compromise on anything that will decrease his chance to gain influence, he shows a peculiar selfishness, although he is generous in material gifts to deserving friends or relatives. He married the daughter of a wealthy merchant and since then has himself continued to increase his own fortune in various ways. He is shrewd, conservative, and honest in all his dealings. He never reads and has no use for learning which is not applicable to industry. His dogmatic and unfounded assertions disclose his conceited and assertive nature. In any group or situation he remains absolutely independent and true to his own convictions. He hates neglect and craves recognition. Although denying himself nothing, his wants and tastes are not extravagant for one of his means. In his habits he is extremely regular and he avoids disturbing and unpleasant situations because of his calculating foresight. Because of a quick mind and an excellent physique he demands the same of anyone whom he likes. His own success, his inability to see or to want to see points of view other than his own, his keen intellect, his wide experience, and his extraordinary ability to judge personalities make him feel that most people are fools because of the mess they make of their lives. He has little artistic sense and his deeply hidden emotional life centers around his three children. In general, his ideals are wealth, influence, health, and good sense.

*2. Medium specific*

Mr. L—Is tall, well-dressed, and has good complexion. Is Jewish. His favorite author is Ben Franklin, whom he idolizes. Aside from Franklin's writings and biographies he reads no other books. Reads newspapers carefully, particularly stock reports and political affairs. Earned considerable fortune as a wholesale fruit dealer, then sold out. Believes men should not marry until they have \$40,000—until that time women are only an unnecessary nuisance. Wants to write a book exposing certain wealthy acquaintances and show how they have gained wealth dishonestly or unscrupulously. Is one of the few men in America to have a personal account with J. P. Morgan Company. His automobile license, phone number, and house number are always the same. When traveling he always eats at Child's restaurants. Will not let anyone hold his coat but likes to be asked. Believes an education in ordinary college is quite worthless. Thinks expensive courtships are foolish. Invests money for friends and hates speculation. Believes every young man should be able to perform some skilled manual labor. Smokes conservatively. Is careful that the family is comfortably clothed and well out-

fitted. Enjoys jokes or scandal about influential men he doesn't like. Makes frequent trips to New York and Washington if he thinks he can meet someone with influence. Hates short people. Likes to score little financial victories over big concerns. Has financed two prominent doctors through medical school. If served anything which is not first class he always complains. Urges all his friends to take precautions about their health. Has a solution for any national financial or agricultural problem that arises. Exercises daily. Likes to play with his children. Detests museums and theaters.

### 3. *Specific*

Mr. L—Is six feet tall and has red cheeks. Wore a well-pressed suit yesterday. Two evenings ago sat home and read a chapter from Franklin's autobiography. Read the stock reports in the paper this morning—also clipped out a political speech. In May, 1919, he sold his wholesale fruit company for \$200,000. Today dictated three paragraphs telling how a certain Chicago merchant made unscrupulous business dealings. Three weeks ago took a trip to New York to consult one of J. P. Morgan's partners. At present his phone number, automobile license, and house number are all 7532. When in Washington on last trip he ate at Child's. While in a hotel recently the girl at the check room began to help him on with his coat. L thanked her but refused the assistance. Last week sent his son a clipping about a new technical college. When thirty-six years old spent only \$1.50 in the successful courtship of the daughter of a wealthy family. Last week invested \$500 for a servant. Yesterday scolded a young man who admitted he could not make a good table with his own hands. Smoked two cigars yesterday. Measured his son's feet to be sure his shoes were the proper size. Had a special chair built for his daughter so she could sit up properly. Repeated a joke on Mr. Mellon which was told him yesterday. Made a trip from Chicago to New York last month so he could be introduced to and perhaps have dinner with a retired American ambassador. Last week when riding on a diner, he ordered baked apple (without cream) and cereal for breakfast. By using the cream for the cereal on both cereal and apple he felt that he was beating the company. Met a man yesterday who was five feet three inches tall and whom he didn't like. Last week sent a check to a boy in college. When eating out last night he complained that the melon was not good. One day last spring he bought a bottle of cough medicine and gave it to a prominent New York banker whom he had met the day before. The banker had a cold and Mr. L told him he ought to take the rug out of his room and turn off the fan. Wrote an outline of a plan to stop speculation on the stock exchange by closing it three days of each week. Went swimming yesterday afternoon. Last Saturday afternoon played baseball with his small son. Refused to go to the theater with his wife last Friday.

It will be noted that each general concept is paralleled in the other two sketches by some statement which corresponds to its meaning but is more specific. Thus "P— was valedictorian of his class in college" is meant to illustrate the general concept "P— is brilliant" and "K— has achieved considerable recog-

nition as a young artist" is illustrated by "K— has a charcoal sketch on exhibit".

Presentation of the sketches was divided into three different orders. First, a *random* method, in which a rating was obtained on each individual sketch. In this presentation each of the three sketches of one personality was separated by 11 sketches of other individuals. The *Os* were given the following directions: "You will be given separate personality sketches. After you have read each sketch, try to rate its trenchancy or what you feel your acquaintance with the person to be. In the rating, use a ten to zero scale: ten, nine, or eight being used if you believe you know the personality extremely well; seven to four if you feel only fairly well acquainted; and four to zero if you have only a slight acquaintance.<sup>1</sup> After you have made the rating, try to tell the experimenter why you feel that you know the particular personality as you do. Consider each sketch independently."

Three weeks later ratings were obtained when the sketches were presented again. In the second order, *specific-general*, the three sketches of one individual were read successively; the most specific of the sketches being presented first, then the less specific, and finally the general sketch. Half of the sketches were presented in this order. In the third order, *general-specific*, the three sketches of one personality were likewise presented successively but in this case the specific followed the general and the more specific followed the less specific. The directions for the second and third orders were: "You will be given a series of personality sketches. Three sketches of the same personality will be presented in succession. After the first sketch has been read, you are to tell the experimenter as fully as possible how well you feel that you know the person from the sketch you have just read. When the second sketch of the same individual has been read, you are to tell to what extent the personality is now revealed to you and—if you think that you know the person better—why you think so. Do likewise with the third sketch. At the end of each introspection on each separate test, try to rate your knowledge of the particular personality on a ten to zero scale: (*etc.*)".

1. All ratings have been corrected for the difference of scales used by each *O*.

Twenty *Os* with college education were used for the experiment.

### C. RESULTS

The following table gives the total ratings of 20 *Os* for the sketches of the same length and degree of specificity and the percentage of increase in the ratings when the sketches were presented in the different orders:

TABLE 6<sup>2</sup>

Random			Specific-general			General-specific		
	Sum	% inc.		Sum	% inc.		Sum	% inc.
3g	328	35	3s	143		3g	98	
m	278	12	m	163	13	m	109	11
s	248		g	189	32	s	120	22
7g	291	2	7s	123		7g	181	
m	287		m	129	5	m	200	10
s	291	2	g	143	15	s	238	32
12g	323	4	12s	215		12g	115	
m	310		m	222	3	m	138	20
s	343	11	g	173	-19	s	149	29
30g	398	3	30s	163		30g	234	
m	406	5	m	173	6	m	265	13
s	385		g	172	5	s	283	21

Several interpretations seem to be justified on the basis of these data.

1. *General sketches are more revealing than more specific ones when only three characteristic concepts are given in random order.* Introspections on the specific sketches indicate that there is a marked inability to build up any definite picture of a personality from so few specific statements. The specific statements appear to have nothing to do with each other and to signify nothing

2. In the first vertical column the length and the degree of specificity of the sketches are indicated. The second vertical column shows the sum of all the ratings given each type of sketch. In the third column is shown the percentage of increase of two of the summated ratings for sketches of each length over the third rating for sketches of that length. In the *random* order, the lowest rating obtained for sketches of each length was used as a basis of comparison; in the *specific-general* order, the summated rating of the sketches presented first, *s*, was the standard for comparison; while in the *general-specific* order the ratings on the general sketches, *g*, which were presented first, were bases of comparison.

unless they are referred to more general dispositions of the personality. Examples of the introspections here are:

Absolutely unrelated and I know nothing of the person.  
These details are too few and irrelevant.

On the other hand, the more general concepts are meaningful:

Suggests concrete personalities of a general type.  
I am easily able to fit these things together into the same individual even though the resulting picture is somewhat superficial.

When, in the second order, the more general of these shortest sketches follow the more specific, they validate and corroborate what was—from so few detached details—only a very hazy and uncertain picture.

The general terms allow more latitude and enable me to understand this person and to fit things together.

These (general concepts) are more characteristic and long time affairs and tend to summarize what I might expect but was afraid to infer from the others (specific).

2. *The longer sketches composed of either general or specific concepts are of almost equal merit.*

(a) If enough specific statements are presented, the *Os* seem able to form their own picture of the personality and hence any general concepts that follow only validate the conception already gained.

So many details here that they throw light on the personality.

There are so many instances here that I can put them together into a meaningful whole.

When the more general sketches follow more specific sketches which are composed of a considerable number of items, they seem to add but little to what has already been deduced.

A little more generalization of detailed instances but I knew before what they meant.

In one group (that with 12 concepts) there was a decrease in the knowledge about the personalities when the more specific items were followed by the more general. This seems to be accounted for by the fact that the latter concepts interfere with the imaginal personality formed from the detailed items instead of elucidating the preconceived portrait as in the *general-specific* order.

I had a picture from the first two (sketches *s* and *m*) which I had built up.  
This description spoiled my built-up picture.

(b) It is interesting to notice that the heaping of one generality on another seems to aid in bringing out the major particularity of a personality.

Most of these points fit in with the rest and click fairly well to give me a definite idea of a definite personality.

3. *The most favorable and consistent conditions for understanding the material are obtained when a more general sketch is followed by a more specific sketch.*<sup>3</sup> The former seems to furnish a certain *Einstellung* or readiness for interpretation which the latter tends to focus and to illustrate. Following is a typical series of introspections for the third order:

(After *g* was presented) Complete so far as it goes. Characterizations not quite individual enough.

(After *m* was presented) Very full here. I expected much of it from the former sketch but this adds some unsuspected details which fit in well and particularize the person.

(After *s* was given) All this seems in keeping and the details fill in and integrate the personality. I am now sure that I can rate him 10.

#### D. CONCLUSIONS

The study shows that:

1. A general and meaningful attitude can be aroused in the *Os* towards personalities who are described only in very general terms.

2. When only a very few concepts are used in the description of a personality, the more general concepts are more revealing.

3. There is no significant difference between the capacity of general and specific concepts to produce vivid understanding when a large number of concepts is employed.

4. The greatest efficiency in comprehension is found when a more general description is illustrated or specified by some detailed description which follows it.<sup>4</sup> This conclusion perhaps justifies us in distinguishing here between what James called "knowledge-of" and "knowledge-about"—between *kennen* and *wissen*,

3. The average percentage increase of acquaintance in the *general-specific* order was 26 as compared to an increase of 8 per cent in the *specific-general* order of presentation.

4. This result might prove of use in the formulation of questionnaires and case studies.

between *connaître* and *savoir*.<sup>5</sup> Although in the general sketches and in those more specific ones which are not completely unified and developed there is this "knowledge-of", it is usually not until the more specific follows the more general, that the general attitude becomes particularized and the reader gains some "knowledge-about" the peculiar and simpler qualities of the personality by educating a harmonious relationship between the more general and the more specific attitudes.

5. James, Wm. *Principles of psychology*. New York, Holt, 1890, Vol. I, 221.

## CHAPTER V

### A STUDY OF THE RELATION BETWEEN GENERAL AND SPECIFIC EVALUATIVE ATTITUDES

#### A. PURPOSE OF THE STUDY

Since the acceptance of values forms so distinctive and important a part of personality, it was hoped that a study of certain values on both a *general* and *specific* level and a comparison of these two studies of the same values would yield some information concerning their relationship and some basis for a theoretical consideration of their mutual dependence. By a study of values on a *general* level is meant an investigation with as little reference as possible to any specific situation, object, or person representing the values. By a study on a *specific* level is meant reference to specific situations, persons, or objects. Although it is impossible to secure either complete generality or complete specificity in devising questions to test the values on the former level, there is always the attempt to be more general or less specific, and in the latter instance the attempt is for less generality and greater specificity.

Six values were chosen for this study. These were based upon Spranger's six *Lebensformen*. Spranger<sup>1</sup> classifies individuals into six *ideale Grundtypen*:<sup>2</sup> those who represent a theoretical, economic, aesthetic, social, political (*Machtmensch*), or religious type. The highest value for each of these types is, respectively, truth, material comfort and possessions, appreciation of the particular, love, power, and unity. Spranger claims that each individual possesses all of these values but each to a different degree.

In the present study, the meaning attached by Spranger to

1. Spranger, E. *Lebensformen*, 6. Auflage, Halle, Niemeyer, 1927, 121-279.  
Translated by P. J. Pigors, *Types of men*, Halle, Niemeyer, 1928.

2. For a more comprehensive description of Spranger's types, see Allport, G. W., and Vernon, P. E., *A test for personal values*, *Jl. of Abn. and Soc. Psychol.*, 1931, 26, No. 3.

each value has not been rigidly followed and the test is not claimed to be a test of these values.<sup>3</sup> Spranger's classification, however, has been used as a convenient basis for the investigation. If the relative importance of these values could be ascertained on both a general and a specific level in a sufficient number of individuals, and if a statistical comparison of the results were made, then some information as to the nature of generality and specificity in evaluative attitudes could be obtained.

#### B. METHOD

1. *Material.* To obtain an individual's scale of values a questionnaire was composed<sup>4</sup>. This was divided into two parts: the first part measuring the relative strength of the evaluative attitudes with "general" questions, the second part measuring values with more "specific" questions.

The *general test* consisted of three separate questionnaires. In the first questionnaire, *A*, six incomplete statements, each of which, when completed in any of the four possible ways indicated under each statement, represented a general opinion on a particular subject. Only four of the six possibilities for answering each opinion were listed in order that the subjects would be less liable to discern the purpose of the test and hence, perhaps, aim at consistency. Likewise a carry-over effect was partially avoided. Each of the four opinions under each statement was scored on a three to zero basis: three representing complete agreement and zero representing no agreement. Thus each of the six values was tested four times in this first questionnaire.

Only six items were included in Test A because of the very limited vocabulary from which one could choose on a level of high generality. For example, the general idea of "beauty"

3. The idea of testing values by means of a questionnaire was derived from a short, unpublished test based on Spranger's types and compiled by G. W. Allport in 1928. To Professor Allport and to Mr. P. E. Vernon the writer is indebted for many suggestions in the composition of the questionnaire.

4. For a test of values following Spranger's classification more rigidly, see G. W. Allport and P. E. Vernon, *A study of values*, Boston, Houghton Mifflin Co., 1931. In this test the statements represent rather specific opinions or situations while in the test employed in the study reported in this chapter it was necessary to have *both* general and specific statements.

can scarcely be expressed except by using some form of that word itself.<sup>5</sup>

#### TEST A

Score each of the following 24 statements on the basis of 3, 2, 1, or 0. Let 3 represent complete agreement, 2 general agreement, 1 partial agreement, and 0 no agreement. If several statements in one group mean the same to you, mark them with the same number. The four statements in each group are not meant to include all the possibilities.

- I. My interests in life are—  
 a. The enjoyment of the company of family and friends  
 b. Fidelity to my religious ideals  
 c. Enjoyment and creation of beautiful things  
 d. Possession of wealth and the things that money can buy
- II. In my opinion an ideal man should—  
 a. Respect authority and government  
 b. Be kind and sympathetic  
 c. Desire to possess and to help increase knowledge  
 d. Be wealthy
- III. I believe that those who have done most for the world at large are—  
 a. Philosophers, scientists, and scholars  
 b. Artists, poets, and musicians  
 c. Financiers and business leaders  
 d. Law-makers and leaders of governments
- IV. In my opinion world progress means—  
 a. The creation of beauty  
 b. The discovery of religious truth  
 c. Dispelling ignorance in the world  
 d. The improvement of governments and laws
- V. I should be *least* willing to sacrifice—  
 a. The appreciation of beauty and the desire to create beautiful things  
 b. A desire to increase my own and existing knowledge  
 c. Respect for my religious ideals  
 d. Sympathy and kindness
- VI. In my opinion education should most nearly mean an increase in—  
 a. Kindness and helpfulness to others  
 b. Ability to influence one's fellows  
 c. Respect for religious ideals  
 d. Applying knowledge to increase wealth

Since Test A contained so few instances, *Test B* was composed to serve as a check on the reliability of Test A. This second test consisted of 36 paired comparisons which were based

5. For a brief discussion of spurious positive correlation due to repeated words, see Vernon, P. E., and Allport, G. W., A test for personal values, *Jl. of Abn. and Soc. Psychol.*, 1931, 26, No. 3.

on Test A. Each of the four possible completions to an incompletely completed statement in Test A was compared with every other possibility for the same statement. Thus in Test B, the first statement—"I am more interested in enjoying the companionship of my family and friends than in being true to my religious ideals"—compared the first two choices of the first statement in Test A:

"My interests in life are—

- a. The enjoyment of the company of family and friends
- b. Fidelity to my religious ideals."

There were, then, six paired comparisons for each of the six items in Test A. In order that the six comparisons for each of the items might be as mixed as possible, each one was separated by one comparison from each of the five other items.

The subjects indicated their choice by encircling either a "yes", "yes?", "no?", or "no". "Yes" indicating agreement, "yes?" indicating somewhat more agreement than disagreement, etc. In the scoring of this test, "yes" and "no" were given a value of two; "yes?" and "no?", a value of one.

#### TEST B

If you agree quite thoroughly with a statement draw a circle around "yes"; if you disagree quite thoroughly draw a circle around "no". If you are not sure but feel that you agree more than you disagree, encircle "yes?" and if you feel that you disagree slightly more than you agree, encircle "no?".

1. I am more interested in enjoying the companionship of my family and friends than in being true to my religious ideals.	yes	yes?	no?	no
2. The creation of beauty does more for world progress than an increase in respect for and spread of religious ideals.	yes	yes?	no?	no
3. I should prefer that a man be kind and sympathetic than that he respect authority and acquire power.	yes	yes?	no?	no
4. If a success which I had determined to attain required a sacrifice, I could more easily reconcile myself to give up the desire to acquire knowledge and to increase existing knowledge than to lose my appreciation for beautiful things and the desire to create them.	yes	yes?	no?	no
5. Philosophers and scientists have done more for the world than have artists and composers of music.	yes	yes?	no?	no

6. Kindness and helpfulness are more the signs of an educated person than is the desire to respect or to gain power.	yes	yes?	no?	no
7. The enjoyment and creation of beautiful things interest me more than the companionship of my family and friends.	yes	yes?	no?	no
8. World progress is aided more by dispelling ignorance than by creating beauty.	yes	yes?	no?	no
9. The right sort of man would rather respect and gain power than be learned and create knowledge.	yes	yes?	no?	no
10. Success for me would depend more upon an ability to appreciate and to create beauty than on an ability to live up to my religious ideals.	yes	yes?	no?	no
11. Great financiers and business leaders have done more for the world than have those who have been concerned with seeking truth.	yes	yes?	no?	no
12. Education should teach respect for and ways of pursuing religious truth rather than kindness and helpfulness.	yes	yes?	no?	no
13. I should rather become wealthy than enjoy the company of my friends and family.	yes	yes?	no?	no
14. The improvement of laws and government does more to further world progress than does the creation of beauty.	yes	yes?	no?	no
15. I believe that a man who prefers to be wealthy is a better type than one who desires to gain power.	yes	yes?	no?	no
16. An appreciation of beauty and a desire to create beautiful things are to me more essential than sympathy and kindliness.	yes	yes?	no?	no
17. Those who have created knowledge have helped the world more than have those who have become leaders and gained authority.	yes	yes?	no?	no
18. The aim of education ought to be to teach one how to earn money rather than how to be kind and helpful.	yes	yes?	no?	no
19. I should prefer to be true to my religious ideals rather than to enjoy and create beauty.	yes	yes?	no?	no
20. Progress is aided more by dispelling ignorance than by increasing the respect for and spread of religious ideals.	yes	yes?	no?	no
21. I think a man who is kind and sympathetic is more ideal than one who possesses great knowledge and who helps increase knowledge.	yes	yes?	no?	no
22. I should be made more unhappy if I had to sacrifice my religious ideals than if I had to sacrifice my desire to acquire and to increase knowledge.	yes	yes?	no?	no
23. Great financiers and business leaders have done more for the world than have artists, musicians, and poets.	yes	yes?	no?	no

24. If education taught people to respect authority yes yes? no? no and to gain power it would be better than if it taught them to live up to religious ideals.

25. Living up to my religious ideals does not concern yes yes? no? no me so much as becoming wealthy.

26. An increase in respect for authority and power yes yes? no? no would aid progress more than if religious ideals gained wider influence.

27. The best type of man is more concerned in being yes yes? no? no kind and sympathetic than in being wealthy.

28. I should be more willing to give up my desire to yes yes? no? no acquire knowledge than my desire to be kind and sympathetic.

29. Those who have created beauty have aided the yes yes? no? no world more than those who have acquired power.

30. Education should concern itself more to teach yes yes? no? no how to earn money than why to obey authority or how to gain power.

31. I should rather enjoy and create beauty than yes yes? no? no become wealthy.

32. A greater advance in world progress would come yes yes? no? no if ignorance were decreased than if the use of power and the respect for authority were improved.

33. The desire to possess and to help create knowledge yes yes? no? no would characterize an ideal man more than would the desire to gain wealth.

34. I should be more willing to sacrifice my religious yes yes? no? no ideals than to give up the desire to be kind and sympathetic.

35. The world has been helped more by business and yes yes? no? no financial leaders than by men who have held great authority.

36. It would be better for education to teach people yes yes? no? no how to earn money than why to respect and to seek religious truth.

*Test C* represented an attempt to ascertain an individual's scale of interests using the most general questions possible.

#### TEST C

Score each of the following six values with numbers from 12 to 0; 12 being highest, 0 being lowest. For example, if you care *extremely* for things with a certain value, put a 12 beside that value while if you care for other things *very much* or *considerably* mark the value which they represent with 11, 10, 9, etc. If certain values mean little or nothing to you, mark them 3, 2, 1, or 0. If several values mean the same to you, mark them with the same number.

The values are arranged in alphabetical order to avoid any suggestion of relative significance.

I believe that in general I care in the following degree for things which have a—

	Degree of esteem of the value
Aesthetic value (which are beautiful)	_____
Economic value (which can be bought for money or which will help me earn more money)	_____
Power value (which have influence and authority)	_____
Religious value (which fit into or enlarge my religious ideals)	_____
Social value (which promote friendship, kindness, sympathy, and love)	_____
Theoretic value (which make up existing knowledge or may be contributory to it)	_____

Tests A, B, and C, then, were all tests of six values on a general level and the sum of the scores on these three tests was used as an indication of the relative importance of these attitudes thus measured for an individual.

In *Test D* the statements to be completed were made as specific as possible without sacrificing their applicability to a large number of people. Concrete situations that were thought to be within the limits of experience of a normal adult were selected. The form and the scoring of the tests were identical to that of *Test A* except that in *Test D* there were 15 situations instead of six. More situations were included in this test because the possibility of greater specificity increased the range of vocabulary and of instances which one could use. It was possible to particularize a general evaluative attitude by an example.

Because of the comparatively large number of items in *Test D* and the consequent danger of sophistication of the Subject due to repetition of the same values, the statements to be evaluated were arranged in such a way that only two instances representing the same values were contained in successive items. Thus, the first two items contain only *religious* and *power* instances in common, while the second and third items contain only *social* and *economic* instances in common.

## TEST D

Score each of the following statements on the basis of 3, 2, 1, or 0. Let 3 represent complete agreement, 2 general agreement, 1 partial agreement, and 0 no agreement. If several statements in one group mean the same to you, mark them with the same number. The four statements in each group are not meant to include all the possibilities.

- I. I should like to meet—
  - a. The Pope
  - b. President Hoover
  - c. Einstein
  - d. My favorite living artist or composer
- II. When looking over a newspaper, I usually read—
  - a. The stock reports
  - b. Politics
  - c. Church or religious news
  - d. Personal welfare news or charity bequests
- III. I like to receive letters about—
  - a. The personal life of friends
  - b. Business opportunities
  - c. Abstract ideas
  - d. Art or literature.
- IV. Assume that all the things listed below are being broadcast at the same time. To which do you usually turn your radio?
  - a. Symphony or classical concert
  - b. Political speech
  - c. Latest popular piece
  - d. Church service
- V. If you are asked to wait alone for a few minutes in a strange living room, do you usually—
  - a. Look at objects of art—furniture, pictures, rugs, etc.
  - b. See what books are in the bookcase
  - c. Figure out the approximate amount of money the owner must have
  - d. Estimate the influence, prestige, and social position of the owner
- VI. When you are dining with a group of intimate friends, do you prefer that the conversation be about—
  - a. Business
  - b. Religious questions
  - c. People
  - d. The facts and theories of some field of learning
- VII. When I spend an evening at home, I usually—
  - a. Read something which will help increase my prestige in my own line of work
  - b. Talk to friends or relatives
  - c. Enjoy music
  - d. Use the spare time in preparing to make more money

VIII. In the past year I have spent or given more money to—  
 a. The church  
 b. Non-religious charities  
 c. Schools and books  
 d. Objects of art for personal enjoyment

IX. In college I find myself interested in—  
 a. Studies  
 b. Preparing for future work  
 c. Examining the meaning of life  
 d. Gaining a place on a team, a managership, etc.

X. When you have been introduced to a person of your own age and sex and have just left him after talking to him, do you usually find that you have—  
 a. Some idea of his general background  
 b. Told him a good deal about yourself  
 c. Been speaking of abstract things  
 d. Gained some impression of his economic status

XI. I count among my intimate friends people who are—  
 a. Interested in art  
 b. In business  
 c. Religiously inclined  
 d. Humanitarian—interested in helping people

XII. Suppose you were in Berlin and had already seen the city in a very general way. Assuming that you knew the language and had one more day to spend there would you—  
 a. Visit the Reichstag and government buildings  
 b. Visit the churches   
 c. Talk to various people you might meet  
 d. Visit the library, university, and book stores

XIII. In a book store do you find yourself lingering longest over—  
 a. Poetry  
 b. Biographies of great men  
 c. Religious books  
 d. Books on economics or business

XIV. If I could have but one picture in my room, I should choose one—  
 a. Of a great scientist or philosopher  
 b. Of a friend or relative  
 c. By my favorite painter  
 d. Of a person who has had great influence

XV. If I had a son I should like him to be a great—  
 a. Teacher  
 b. Business man   
 c. Artist  
 d. Minister or priest

*Test E* contained 15 paired comparisons of two specific instances, each of which represented one of the six values. Unlike

Test B, the comparisons in this test were not based on the items in the test preceding it. It was planned that the reliability of the specific tests might be more adequately ascertained by a greater diversity of particular instances rather than by a repetition of items.

Test E was scored in the same manner as Test B.

#### TEST E

If you agree quite thoroughly with a statement draw a circle around "yes"; if you disagree quite thoroughly draw a circle around "no". If you are not sure but feel that you agree more than you disagree, encircle "yes?" and if you feel that you disagree slightly more than you agree, encircle "no?".

1. In the past year I have given more money to the church and to religious causes than to non-religious charities.      yes      yes?      no?      no
2. I should prefer to own my favorite high priced automobile because of the power I could experience in it rather than because it is beautiful to look at.      yes      yes?      no?      no
3. I should prefer to have Rockefeller's ability to make money than Einstein's genius and reputation.      yes      yes?      no?      no
4. When riding in a street car I oftener study the faces of the passengers than read the advertisements.      yes      yes?      no?      no
5. I should rather meet President Hoover than Einstein.      yes      yes?      no?      no
6. A certain cathedral in ..... (fill in) has more significance to me because of its architectural beauty than because of its religious symbolism.      yes      yes?      no?      no
7. I am more interested in Gandhi because of his success against British policies than because of his service to the people of India.      yes      yes?      no?      no
8. If I had been traveling in Europe on a fairly moderate standard of living and found that when I counted up my money in Paris a week before sailing I had some extra to spend, I should live in a high class hotel and treat myself to better food and drinks the last week rather than attend theaters and concerts.      yes      yes?      no?      no
9. Julius Caesar was a greater man than St. Paul.      yes      yes?      no?      no
10. The northern victory in the Civil War was a good thing primarily because it freed the negroes and not because it settled a theoretical question of government.      yes      yes?      no?      no
11. I should prefer to attend a religious convention than a business convention.      yes      yes?      no?      no

12. The world would have lost more if Beethoven had never composed his symphonies than if Aristotle had never written anything. yes yes? no? no

13. I should think Mr. J. P. Morgan would be happier because of the power his position affords him than because of the things he can buy and do with his wealth. yes yes? no? no

14. Answer either A. or B.

A. I go to church at least once a month because the religious symbolism appeals to me rather than because I enjoy the sermons. yes yes? no? no

B. I do *not* go to church because the services annoy me intellectually rather than because I find no religious symbolism there. yes yes? no? no

15. If I could have but one picture in my room, I should prefer one of my parents or of a friend than one by my favorite painter. yes yes? no? no

2. *Administration.* Through the coöperation of the Department of Psychology at Dartmouth College,<sup>6</sup> on December 5, and 6, 1930, mimeographed copies of the test were given by the writer to the members of an introductory course in psychology. The majority of the class consisted of college sophomores and the remainder of the class was made up of juniors and seniors. Four hundred and one students took the test. The class was divided into five sections. All of the questionnaires were completed in about forty minutes.

To facilitate the scoring of the tests, a score sheet was compiled. The method of scoring<sup>7</sup> was explained to the students by the writer and each student scored his own test and added the sums of the individual tests to find out for himself what his hierarchy of evaluative attitudes was. The score sheets were later examined by the writer and any corrections necessary in scoring or addition were made.

6. The writer wishes to express his thanks to Professor C. L. Stone for his kindness in allowing the administration of the tests.

7. *Tests A and D* were scored by inserting the value assigned that particular choice on the test beside the proper letters on the score sheet. *Tests B and E* were scored by inserting beside either the "no", "no?", "yes?", or "yes" the number which represented the value of the word which had been encircled on the tests: "yes" and "no" being assigned the value of 2, "yes?" and "no?" being given 1. *Test C* was scored by simply placing beside the proper words in the score sheet the number assigned in the test to the value which one of the six words on the score sheet obviously represented.

## C. RESULTS AND INTERPRETATIONS

1. *Positive correlations between general and specific evaluative attitudes.* The scores of the three general tests A, B, and C were added to give the *general score* for each value, while the sum of the scores of tests D and E gave the *specific score* for each value. By means of the product-moment method, the *coefficient of correlation* between the *general* and the *specific* score for each value was calculated. The results were:

Value	<i>r</i>	P. E.
Religious	.614	.021
Social	.326	.029
Economic	.635	.020
Power	.492	.026
Aesthetic	.636	.020
Theoretic	.388	.028

The positive correlations<sup>8</sup> would seem to indicate<sup>9</sup> that there is a very definite relationship between the results obtained when attitudes are tested by questionnaires composed of general phrasing and the results when the same attitudes are tested by questionnaires with specific phrasing.

2. *Higher reliability coefficient for tests of general evaluative attitude.* The *reliability coefficient* of both the general and the specific tests was obtained by the correlation of the sums of the scores on alternate items<sup>10</sup> and the application of Spearman's

8. The differences between the coefficients of correlation for the different values is perhaps largely due to the insuperable difficulty of constructing a test in which all of the items representing a particular value actually refer to the same interpretation of that value. For example, the highest correlation was found for the *aesthetic* value ( $r=.636$ ) and may be accounted for because of the relatively unequivocal meaning, within a single individual and between individuals, of the concept "beauty" and because of the comparative ease in illustrating the concept specifically. For similar reasons we find the lowest correlation ( $r=.326$ ) for the *social value*. In the latter instance, the interpretation of the concept "love" varies within the individual and with different individuals and specific instances illustrating the value—if they are to mean anything to all the individuals taking the test—must particularize the various meanings of the word. The relative position of the other correlations between the highest and the lowest is likewise probably due to the degree of unequivocality of the concept which represents the value.

9. For a further discussion of similar correlations see Allport, G. W., and Vernon, P. E., *Jl. of Abn. and Soc. Psychol.*, 1931, 26, No. 3.

10. It was impossible to include Test C in calculating the reliability of the general tests, because the test contained only one item concerning each evaluative attitude and hence could not be divided into halves.

formula,  $r_x = \frac{2r_h}{1+r_h}$ , where  $r_x$  = reliability of the whole test and  $r_h$  = the self-correlation of the half tests. The results were:

Value	General	Specific
R	.934	.824
S	.870	.789
E	.939	.749
P	.841	.684
AE	.897	.752
T	.811	.588

The most significant result indicated by the above figures is the *difference in reliabilities* between the general and the specific tests. The *higher reliabilities of the general tests show that a general attitude seems to be more internally consistent than are specific attitudes of the same class*.

A. *A possible objection of spurious correlation.* The *specificists* may object to the general tests in the questionnaire and claim that the high reliability is wholly spurious. The composition of *Test A* was such, however, that the same terms were never used more than once in the *same* context. If the results—which show that the reliability of the general test for each value was greater than that for the specific test for the same value—are partially spurious, it is because *Test B* contained the same items as *Test A* but in the form of a comparison. On the other hand, the high reliabilities which were obtained for the general test of each value demonstrate a *consistency of general interest when the individual is responding to different situations* and show that *an individual is very likely to react in the same way when the same instance is repeated in a different Zusammenhang, i.e., a paired comparison*.

B. *The specificists' arguments.* The contention is made by the specificists that there are no such things as traits, general principles, general attitude, or general forms of conduct. They argue that the general concepts mean nothing except a quality of behavior displayed in specific situations. As an analysis of their methods and arguments may throw some light on the

problem, we shall consider the doctrine as it is seen in Thorndike's theory of identical elements,<sup>11</sup> Hartshorne and May's study of honesty,<sup>12</sup> and Symonds conception of tact.<sup>13</sup>

According to Thorndike, "A change in one mental function alters any other only in so far as the two functions have as factors identical elements. The change in the second function is in amount that due to the change in the elements common to it and the first. The change is simply the necessary results upon the second function of the alteration of those of its factors which were elements of the first function and so were altered by its training. To take a concrete example, improvement in addition will alter one's ability in multiplication because addition is absolutely identical with a part of multiplication and because certain other processes, for example, eye movements and the inhibition of all save arithmetical impulses, are in part common to the two functions."<sup>14</sup>

Hartshorne and May contend that "an individual's honesty or dishonesty consists of a series of acts and attitudes to which these descriptive terms apply."<sup>15</sup> They very definitely show that "tests representing different test situations elicit different amounts of cheating, and these differences grow less as the test situations become more like."<sup>16</sup> From their findings they then argue that "honesty or dishonesty is not a unified trait in children of the ages studied, but a series of specific responses to specific situations"<sup>17</sup> and that "the drives (for cheating) are specific and are a function of the situation and the mode of deception for which the situation calls."<sup>18</sup>

Symonds believes that "once we are able to remove tact from the realm of mystery and say 'Here are the habits that tact

11. Thorndike, E. L. *Educational psychology*. New York, Lemcke and Buechner, 1903.

12. Hartshorne, H., and May, M. A. *Studies in deceit*. New York, Macmillan, 1928.

13. Symonds, P. M. *Analysis of tact*. *Jl. of Educ. Res.*, 1930, 21, 241-254.

14. Thorndike, E. L. *Educational psychology*.

15. Hartshorne, H., and May, M. A. *Studies in deceit*, I, 380.

16. Hartshorne, H., and May, M. A. *Studies in deceit*, II, 242.

17. Hartshorne, H., and May, M. A. *Studies in deceit*, II, 243.

18. Hartshorne, H., and May, M. A. *Studies in deceit*, I, 390.

consists of 'we make it easier for people to learn to be tactful.'<sup>19</sup> So with the hope of fostering tactful behavior, Symonds asked his students to make lists of all the items which showed lack of tact. These preliminary lists were classified, the classifications were distributed and the students were asked to think of certain tactless items which might be put under each heading. A list of 1,173 items was thus made and for Symonds the presence of these 1,173 items in an individual is tactlessness.

C. *Limitations of the specificist's method.* It can be admitted that the results of these investigators are correct as far as they go. But *the technique of the specificists is determined by their point of view and quite excludes other approaches, while their own interpretations are wholly unwarranted as explanatory hypotheses of results which their point of view makes it impossible for them to obtain.* For them the mind consists of innumerable specific functions each of which remains quite separated from the rest. "One may train one of these functions or a number of them, but not a faculty in general."<sup>20</sup> One function resembles another function, then, only in so far as the specific elements which comprise the content of the situation are identical. For the sake of clarity we shall term these elements referred to by the specificists *identical specific elements*.

The suggestion which we should like to make and which the results of the specificists in no way disprove is that the really important factor in situations is a certain inherent and common identity with various other situations which is not reducible to the elements comprising each situation. By this we do not refer to an identity of content but to the form of the relationship existing between the elements (no matter how unlike they may be). It is our contention that it is because of this factor that functions are similar and that the form of relationship—found in very diverse situations—may become the content of the function. This function becomes increasingly general as the form of a relationship which characterizes the function becomes increasingly embracing. To avoid unnecessary confusion we

19. Symonds, P. M. Analysis of tact. *Jl. of Educ. Res.*, 1930, 21, 241.

20. Stratton, G. M. *Developing mental power.* Boston, Houghton Mifflin Co., 1922, p. 4.

shall use this term, *inherent relationship*, in the sense in which it is stated above and instead of such terms as "generality", "common principle", etc., which are employed somewhat uncritically (and yet, we hold, usually quite rightly) in much of the literature and in the language of common sense. It is this factor which the point of view of the specificists entirely excludes.

*A critical analysis of the studies mentioned above will illustrate the limitations of their methods.*

1. *Thorndike's theory of identical elements.* In his monograph on *The Theory of Identical Elements*,<sup>21</sup> Orata ventures "a critique of Thorndike's theory of identical elements and a re-interpretation of the problem of transfer of training" (sub-title). As Orata's discussion and criticism quite ably illustrate our contentions, we shall follow it in the present analysis of the theory of identical elements.

According to Thorndike, any transfer of training is quite impossible unless the factors concerned in the functions contain identical specific elements. It is Orata's thesis that "the doctrine of identical elements either does not give us a satisfactory explanation of how transfer takes place, or else, it over-simplifies the process of transfer to such an extent that the problem of transfer entirely disappears" (p. 173). The validity of Thorndike's assumption that mental functions are highly specialized is called into question. For "if by specific ability Thorndike means a subdivision of a faculty, he is back to faculty psychology and formal discipline. On the other hand, if he makes each specific act dependent upon an equally specific ability, the problem of transfer disappears, since learning to perform a specific act does not help in learning to perform any other act" (p. 173).

In support of his argument that "it is an obvious fact that we use old experience in dealing with new situations, and merely to account for this by saying identical elements is to state the fact and not to explain it" (p. 173), Orata contends that training a function along specific lines as Thorndike did in his experiments means sacrificing plasticity in related functions. For

21. Orata, P. T. *The theory of identical elements*. Columbus, Ohio State University Press, 1928, pp. 204.

example, "estimating the (length of a) line of a certain magnitude is so bound up with estimating other magnitudes (that) . . . having trained a function in estimating the length of a line .5 inch long in such a way that the result is a fixed habit, one cannot train the same function in estimating another line without some interference effect" (p. 87).

He likewise points out that in Thorndike's experiments the "conditions favorable to generalization" were lacking "for the simple reason that the subjects were trained along specific lines so that in the end we cannot expect anything other than specific training" (p. 78). "On the other hand, if the conditions of the experiment are so altered as to introduce favorable conditions of transfer, such as conscious adaptation of means to ends, formulations of laws and principles, discussion, analysis, and organization of experience to fit the demands of the new situation, the results of experiments are pretty sure to indicate that mind and intelligence are not divisible into small bits of particular abilities which are insulated and independent of one another, but that they represent a unitary and highly integrated system of adaptive and flexible forms of behavior" (p. 174).

This last claim, *viz.*, that functions may become generalized (that an inherent relationship may be seen in various situations and that this inherent relationship is experienced by a common function), Orata supports by citing experiments of Coxe,<sup>22</sup> Judd,<sup>23</sup> Ruger,<sup>24</sup> Woodrow,<sup>25</sup> Meredith,<sup>26</sup> and others.

The results of these investigators seem to show quite definitely, then, that some inherent relationship may be found if an adequate technique is used. "The difference between Thorndike's procedure and that of Woodrow, Meredith, and Judd is quite evident.

22. Coxe, W. W. The influence of Latin on the spelling of English words. *Jl. of Educ. Res. Monograph*, 1925, No. 7, pp. 121. Also in *Jl. of Educ. Res.*, 1923, 7, 244-247.

23. Judd, C. H. The relation of special training and general intelligence. *Educ. Rev.*, 1908, 36, 28-42.

24. Ruger, H. A. The psychology of efficiency. *Archives of Psychol.*, 1910, 19, No. 2, 18f.

25. Woodrow, H. The effect of type of training upon transference. *Jl. of Educ. Psychol.*, 1927, 18, 159-172.

26. Meredith, G. P. Consciousness of method as a means of transfer of training. *The Forum of Education*, 1927, 5, 37-45.

Thorndike trained his subjects in routine fashion, that is, without conscious formulation of guiding principles. The results show very small transfer in most cases and interference in others. These findings are verified by Judd, Woodrow, and Meredith in the case of practice groups that were merely drilled in routine fashion. But besides this practice group, Judd, Woodrow, and Meredith had another group which, in addition to practice, was given training in conscious formulation of guiding principles or generalization (Judd), training in technique of memorizing (Woodrow), or of 'critical analysis of the important features of a definition' (Meredith). The conclusion is inevitable that when an individual is trained in mere 'routine fashion' or drill, he gets a fixed and mechanical habit which does not transfer. On the other hand, when he is trained consciously to organize his knowledge or procedure in such a way that general principles are formulated, the result is not a mechanical habit but generalization—or adaptive and flexible form of behavior which by virtue of its flexibility transfers" (p. 99).

2. *The method of Hartshorne and May* also seems to exclude the possibility of demonstrating the existence of any functions which are concerned with the discovery of relationships in situations. Their contention, then, that "whatever honesty a man possesses resides not in a secret reservoir of honest virtue nor in the ideal of honesty which he may hold before himself as worthy of his best effort, but in the quality of the particular acts he performs" <sup>27</sup> is unjustified because of the limitations of their method. Several objections can be made to their conclusions.

a. In the first place it seems unfortunate that a study of "honesty" should be used as the point of reference for a chapter on *The Specific Nature of Conduct and Attitude* <sup>28</sup>. Honesty seems to be more of an ethical concept than a genuine attitude <sup>29</sup> and interpretations which deny the existence of any general atti-

27. Hartshorne, H., and May, M. A. *Studies in deceit*, I, 379.

28. Hartshorne, H., and May, M. A. *Studies in deceit*, I, Ch. XXI.

29. Allport, G. W. *The composition of political attitudes*. *Amer. J. of Sociol.*, 1929, 35, 221f.

tudes because a general attitude of honesty cannot be demonstrated would appear to be unfounded.

b. It seems particularly unjustifiable to generalize from the findings in the study in view of the fact that the subjects for the tests were all children between the ages of 9 and 15. Diversity and inconsistency of behavior are not so surprising in such an age level and certainly cannot be claimed as a proof that an inherent relationship in various situations cannot be detected by more mature personalities who might be better able (than children) to discover similar forms of relationship in various situations.

c. These authors "are quite ready to recognize the existence of some common factors which tend to make individuals differ from one another on any one test or on any group of tests" (385). This difference they explain as "a function of the situation in the sense that an individual behaves similarly in different situations in proportion as these situations are alike" (385). We find, then, a certain amount of consistency on this low age level. Consistency becomes greater as the situations become more alike. The authors are referring to the similarity of the identical specific elements in the situations. *Our claim is that situations can also become alike because they possess inherent relationships and that the experiments of Hartshorne and May do not show that the perception of such relationships is impossible. They simply neglect to look for this factor.*

d. Individual behavior they also find to be consistent to the amount that "all who cheated at any one level cheated also at each lower level, and that all the one-cheaters cheated at the lowest level, the two-cheaters at the two lowest levels, etc." (388). They then continue "apparently the habit or act is associated with a tendency or attitude of a specific *amount*, which carries the individual just so far and no farther. Those who overcome the greatest resistance in order to cheat will overcome also all weaker resistances, and those that can overcome only the least resistance will be found cheating only on the test which requires the adding of a check mark" (389f. Italics theirs). But perhaps little more consistency in the expression of so complex

a general attitude (honesty) can be expected in adolescents. Observation and a comparison of the results of the questionnaire considered previously in this chapter with the results of Hartshorne and May would seem to permit us to venture the hypothesis that this "*amount*" of attitude cumulates as the individual matures, thus increasing the range and consistency of its own expression in specific behavior.

e. The authors state that "to attribute to a man who acts honestly a faculty or trait of honesty is like explaining the act of remembering by referring it to some faculty of memory" (379). This appears to be an example of that "extreme form of antagonism towards empirical psychology" which C. C. Pratt feels "is only a tendency written large which manifests itself here and there in psychology . . . against those doctrines which attempt to systematize meanings, values, purposes, motives, capacities, abilities, and the complex behavior of human nature".<sup>30</sup> The reasons for such antagonism seem to be that "these phenomena are not palpable and are therefore not the subject of science, or that in some way or other they refuse to be subjected to experimental observation".<sup>31</sup> *Simply because the functions which detect the inherent relationships in situations are impalpable we are by no means justified in denying their existence.* Even though we may not be able to observe them, our data force us to recognize them.

3. *Symonds' analysis of tact* resulted in a list of 1,173 habits the presence of which *is* tact.<sup>32</sup> Rather than contend that tact is the presence of this bundle of 1,173 "items" we would claim that tact is the presence of some inherent relationship found in and manifested through these items or any other situations in which a "tactful" form of relationship might apply and which Symonds' list perhaps omits.

Undoubtedly the beginning of the formation of such a dis-

30. Pratt, C. C. Faculty psychology. *Psychol. Rev.*, 1929, 36, 149.

31. Pratt, C. C. *Psychol. Rev.*, 1929, 36, 149.

32. Symonds actually lists 1,173 items the *absence of* which is tact. However, in order to clarify the following discussion, it will be assumed that Symonds lists 1,173 items *for* tact rather than 1,173 items the absence of which is tact. This is a revision in procedure only and not in meaning.

position may have been made concrete by the learning of a few specific habits. But when the function which is characterized by its reference to that form of relationship which we call "tactful" has once been formed, then it is able to display itself in entirely strange situations whose specific elements are in no way identical to the specific elements of the original situations which demonstrated the relationship.

a. For example, suppose a mythical creature created by Symonds and possessing these 1,173 habits or "items" and who was, therefore, angelic in tactfulness, should go into a country which was distant in time and space and which had altogether different habit systems and ways to display tact than the tactful angel from Symonds' classroom. He would—in the new country—be absolutely tactless. And he would not acquire tact until he had learned the 1,173 (or some other number) odd "items" which made for tactfulness in the new land. This would, we might guess, be a long and tedious process and one which would cause untold embarrassment. Suppose, on the other hand, that another creature whom we shall endow with the function of discovering the inherent relationship which characterizes "tactful" behavioral situations should go to the strange country. First, being tactful, he would not try to display his tact in the old ways learned in his former home. He would watch—and he would watch for examples of the particular form of relationship which he had learned to call "tact". This latter individual we can well imagine could immediately drop all of the 1,173 items and still retain his disposition for tactfulness. And with this potential determining tendency for tact he would strive—through it—to learn the new manifestations of tact.

b. Again suppose that there were a 1,174th item which Symonds had not listed. If both of the individuals posited above should be confronted by this new situation, does it not follow from every day life and common sense that the individual with the tactful point of view would act far more decorously than would the former person?

c. If tact is nothing but habits, how is it then that in every country and in every age and with the resulting different habits

and customs that there are men who display what we call "tact"? As Symonds points out,<sup>33</sup> the customs in the East and in the West are sometimes diametrically opposed. For example, in the East one asks an elderly person his honorable age, while in the West one must not mention age. Asking in the one case, not asking in the other case are illustrations of tact. Yet *there is something called "tact" in both East and West. And if it is made up of different habits how can it be so apparently the same thing by the theory of identical elements?*

If we are to follow the specificist's reasoning to its logical conclusion, we shall even be unjustified in using adjectives in our description of anything except very specific events. According to the specificist's argument we would simply say that

33. Symonds, P. M. *The nature of conduct*. New York, Macmillan, 1928, 97ff. The content of this book has not been analyzed in this discussion because of the inconsistencies of Symonds' arguments. The conclusion he makes is "that when educators set up as objectives certain attitudes of this or that, they are confusing the issue and causing themselves trouble. In some cases they have reference to the *formation of certain habits* which are expected to occur regularly and uniformly in the appropriate situation, such as honesty or cleanliness; or in other cases they refer merely to the verbal response which is learned. *Wherever attitude refers to specific habit, however generalized, the response may be precisely defined and the situations which are to condition this response may be definitely determined. In other cases, they have reference to the readiness which is the static condition of a habit*, or to the feeling which is the accompaniment of responses. But these are merely features or aspects of reaction systems. They are not reactions themselves and hence cannot be the direct objective of education. But they are complementary and correlative to our reaction systems, and one may achieve the result desired by aiming at the formation of definite habits. Our general conclusion is that attitude is subsumed by habit and has no existence as a separate reaction" (229f. Italics mine).

From this one might conclude that the formation of definite habits was the educator's goal. And yet we find the author stating that "*The great need in social education is not so much habit formation as it is a disposition to change one's social habits when conditions demand such a change*" (111. Italics mine).

It is also difficult to determine exactly what could be meant by a "generalized" habit. We are told that "general habits are so much more important than the more specific habits have been overlooked" (115). These general habits, which "depend on the more specific habits for their formation" (230), seem to be the same as "confact" which are ways of reacting to general stimuli. "Confacts do not include inner attitude or disposition. They rest on a foundation of particular habits" (196). A confact apparently includes, then, some conception of generality and to have as one of its features a "readiness which is the static condition of a habit." Yet the author denies any predisposition or determining tendency. General confusion forces us to abandon the argument.

Spinoza once ground a few perfect lenses, refused an inheritance that was legally his, was excommunicated from Jewish fellowship, but was *not* a *perfectionist*; and that Tolstoi wore a peasant's garment, wrote the story of *Master and Man*, died in a country railroad station but was *not altruistic*. Such statements seem quite irrational when one considers the lives of these men and learns how wholly integrated their personalities were around an ideal.

d. *Conclusion of argument against specificists.* Our conclusion is that the amount of transfer of training, of "honesty", of "tact", etc., that an individual displays will depend not so much upon his ability to discern some identical specific elements in the content of the situations but more particularly upon the eduction of some common relationship involved in various situations.

*This function which educts identical forms of relationships from different situations is not specific to any one set or combination of elements or functions but must be thought of as general in the sense that it can be applied by an individual to various situations.* When the nature of any particular relationship has once been learned then the individual may apply this knowledge to situations which may contain few or none of the identical specific elements which composed former situations. Thus the consistency of an individual in his expression of any social attitude or his capacity of transference will depend upon the range of applicability which he finds for the particular eductive function concerned.<sup>34</sup>

Now as the capacity for discerning a common relationship in situations becomes greater, the concept applied to that inherent (*general*) relationship becomes more abstract. Thus an individual capable of finding some manifestation of the general element in a very large number of instances is said to exhibit a general attitude toward those situations, *i.e.*, the aesthetic man finds some expression of "beauty" common to a great many

34. Spearman, C. *The nature of intelligence and the principles of cognition.* London, Macmillan, 1927, 63-77.

diverse situations. This attitude becomes exhibited in relation to specific situations because the attitude *per se* has meaning to the individual. Thus the aesthetic man is able to appreciate beauty in an entirely new situation not simply because certain specific elements in the situation are identical to others he has experienced but because he has the capacity to educt harmonious relationships of form, which satisfy his pre-determined sense of aesthetic pattern, between the elements in the new situation.

If this were not the case, an individual would be confronted constantly with situations which he would be unable to interpret. And if his interpretations depended only upon the identical specific elements of situations we might expect to find more complete agreement in the interpretations of different individuals. Why is it, for example, that an open-minded man, working over certain data, fails to agree with the conclusions which others have drawn from the same data? It is because he necessarily has an hypothesis of his own which enables him to find a unique meaning in his data. *If there were no trace of an hypothesis to be proved or disproved it would be quite impossible to know which data to select and which to seek.*<sup>35</sup>

Since it is obvious that we do have hypotheses and that we do seek to verify and to enlarge them or to disprove and change them, we are forced to admit some sort of general attitude or some function which seeks the inherent relationships of situations and which determines the nature of our specific investigations. It is the usual case that hypotheses are built up from a scanty amount of factual evidence and that then—by virtue of the dynamic and guiding nature of the hypothesis—the investigator proceeds to gather, to seek, and to predict other relationships.

#### D. CONCLUSION

On the basis of the preceding study we may conclude that since the reliabilities for the tests measuring the *general* evaluative attitudes are on the average about 15 per cent higher than the reliabilities for the tests measuring the *specific* evaluative attitudes and since neither the specific nor the general tests are

35. Ritchie, A. D. *Scientific method*. London, Paul, Trench, Trubner and Co., Ltd., 1923.

made up of recognizably specific identical elements (this being particularly true for the tests of general evaluative attitudes), it is quite impossible to account for the high reliabilities of either the tests for specific evaluative attitudes or general evaluative attitudes (especially the latter) wholly by means of the theory of specific identical elements.

Although it is not claimed that the present investigation quantitatively determines the capacity of the mind to educt inherent relationships to any degree, still the evidence from the tests and the critique of the specificist's point of view are at least presumptive of the ability of the mind to generalize its evaluative attitudes.

## CHAPTER VI

### EVALUATIVE ATTITUDES AS DETERMINANTS OF FREE ASSOCIATION TIME

#### A. PURPOSE

The following experiment is an attempt to determine the relationship between a general evaluative attitude and a specific reaction which is presumably a product of that attitude. The experiment involves the comparison of the free association times to words representing each of the six evaluative attitudes which were measured by a scale.

#### B. METHOD AND MATERIAL

1. *The test for evaluative attitudes.* In order to obtain some quantitative data concerning the attitudes of the *Os* towards certain values, the scale compiled by G. W. Allport and P. E. Vernon was employed.<sup>1</sup> This scale endeavors to determine objectively the degree of an individual's acceptance of the six values described by Spranger.<sup>2</sup> The test has been standardized and it probably measures an individual's evaluative attitudes somewhat more accurately than the questionnaires described in the preceding chapter, which were designed primarily for another purpose.

The test was taken by each *O* and was scored by the experimenter. The scores for each *O* were arranged in rank order: the maximum score was ranked first, the minimum last, *etc.*

2. *Free association test.* Six lists of words, each list containing 15 words which had reference to one of the six values measured by the questionnaire, were composed. Thus the complete list of 90 words contained 15 words which referred more directly to the religious attitude than to any of the other five attitudes, 15 words which had particular reference to the aesthetic attitude, *etc.* The six lists of words and the attitudes which they were thought to refer to most particularly were:

1. Allport, G. W., and Vernon, P. E. *A study of values.* Boston, Houghton Mifflin, 1931.
2. Spranger, E. *Lebensformen*, 6. Auflage, Halle, Niemeyer, 1927, 121-279.

<i>Religious</i>	<i>Social</i>	<i>Economic</i>
church	friend	money
priest	conversation	wealth
hymn	kindliness	income
incense	generosity	millionaire
sacrament	fraternity	dollar
choir	family	investment
prayer	love	ownership
chant	home	property
sermon	charity	Packard
baptism	mission	financier
preacher	sympathy	business
God	companion	prosperity
anthem	dance	industry
Christian	fellowship	economics
ritual	reunion	Rockefeller
<i>Political</i>		
leader	<i>Aesthetic</i>	<i>Theoretic</i>
authority	art	scholar
control	symphony	truth
president	poem	book
prestige	Beethoven	philosopher
dictator	violin	science
senator	concert	laboratory
initiative	Rembrandt	education
Napoleon	sculptor	university
tournament	drama	professor
king	statue	research
influence	orchestra	Socrates
victory	music	mathematics
champion	literature	knowledge
manager	landscape	discovery
	Homer	theory

The final order of the words was such that each of the words representing one of the values was separated by five other words representing the five other values.

These words were presented verbally to the *Os* who were instructed to respond verbally with a free association. The association time was measured by means of the voice keys and the Dunlap chronoscope.<sup>3</sup>

The *relative speed of association time* for the 15 words representing the six different values was obtained by calculating the *mean* time for free association to the 15 words representing each value and arranging these mean times in rank order. In determining the rank order, the shortest time was ranked first, the longest was ranked last, *etc.*

3. *Observers.* Thirty *Os* were used in the experiment. Six

3. For a description of the apparatus used to time associations, see p. 23.

of these were graduate students in the Harvard Psychological Laboratory, nine were acquaintances of the writer, and the remaining 15 were undergraduates in Harvard College who were obtained through the Student's Employment Agency.

#### C. RESULTS

1. *The correlation between the rank order for each evaluative attitude and the rank order for the mean association time to the list of words representing that particular evaluative attitude was calculated.* This was done by obtaining the product-moment coefficient of correlation between the position of one evaluative attitude in the rank order based on the scale and the position in the rank order of association times of the mean time of association to the words representing that attitude for each of the 30 *Os*. These correlations<sup>4</sup> and their probable errors were:<sup>5</sup>

	<i>r</i>	<i>PE</i>
Aesthetic	.855	.034
Economic	.551	.085
Political	.548	.087
Theoretic	.543	.089
Religious	.477	.095
Social	.104	.122

2. *The reliability of the difference between two extreme groups.* In order to secure data on the reliability of the difference of the mean reaction time of extreme *Os* to words represent-

4. The significant difference between the correlations in the present study are perhaps due to the nature of the relation between different *Os* of the meanings of the six evaluative attitudes chosen for the study. For example, the high correlation between the aesthetic evaluative attitude and the association times to words representing that attitude might be explained because of the relatively static ideal, *viz.*, beauty in some form, which the aesthetic attitude implies. Similarly, the low correlation between the social evaluative attitude and the association times to words representing that attitude could possibly be accounted for because of the relative fluctuation within an individual and between individuals of the goal towards which such an attitude points. (Cf., for further discussion of the low correlation between items representing the social evaluative attitude, Allport and Vernon, A test for personal values, *Jl. of Abn. and Soc. Psychol.*, 1931, 26, No. 3.)

5. The correlations between the rank orders as calculated by the method of rank-differences were as follows: Aesthetic=.841, economic=.533, political=.530, theoretic=.525, religious=.458, and social=.100. Correlations of the association times and the evaluative attitudes as measured by the questionnaire described in Ch. VI were: (with *general* test) *A*=.762, *E*=.753, *T*=.644, *R*=.557, *P*=.523, *S*=.316; (with *specific* test) *A*=.721, *E*=.682, *T*=.542, *R*=.511, *P*=.566, *S*=.247. (Last 12 correlations based on 18 of the 30 *Os* used in the experiment reported above.)

ing the *same* evaluative attitude, the following procedure was employed.

a. The standard deviation of the free association times of five *Os* whose mean association time to words representing a certain value was *shortest* and of five *Os* whose mean association time to words representing the *same* value was *longest* were obtained.

b. The probable error of the difference of these two means ( $PE_{diff.}$ ) was calculated by applying the formula

$$PE_{diff.} = \sqrt{PE_a^2 + PE_b^2}$$

in which  $PE_a$  is the  $PE$  of the deviations of the shortest times, and  $PE_b$  is the  $PE$  of the deviations of the longest times.

c. The index of the significance of the obtained difference was found by dividing the obtained difference (Diff.) by the  $PE_{diff.}$ .

This method was applied to each of the six lists of words representing the six evaluative attitudes. The results were as follows:

TABLE 7

Value	Stan. Dev.		PE		Diff.	$PE_{diff.}$	$\frac{Diff.}{PE_{diff.}}$
	short	long	short	long			
Economic.....	.313	.346	.105	.116	.620	.156	<b>3.97</b>
Theoretic.....	.223	.190	.075	.073	.409	.104	<b>3.93</b>
Social.....	.138	.237	.046	.079	.353	.091	<b>3.88</b>
Aesthetic.....	.280	.159	.094	.053	.411	.108	<b>3.80</b>
Religious.....	.384	.506	.117	.170	.760	.207	<b>3.67</b>
Political.....	.146	.383	.049	.128	.493	.137	<b>3.60</b>

## Diff.

Since each  $\frac{Diff.}{PE_{diff.}}$  is greater than 3, we seem justified in  $PE_{diff.}$

concluding that these reliabilities are to some extent significant.<sup>6</sup>

6. According to H. E. Garrett (Statistics in psychology and education, New York, Longmans, Green, 1926, 134) a  $\frac{Diff.}{PE_{diff.}}$  greater than 3 indicates that the chances are 99.9 in 100 that the true difference is greater than zero.

## D. CONCLUSIONS

1. The positive correlation between an individual's degree of acceptance of a particular evaluative attitude and his speed of association time to words which have reference to that attitude would seem to indicate that an individual's attitude exerts a significant influence of a very specific instance of his behavior, *viz.*, his speed of association to words. One interpretation of this result might be that an evaluative attitude contains a certain dynamism which is exhibited even in very specific situations.

The low correlation between the social evaluative attitude and the association time to words representing that attitude may be due to the unreliability of the measurement of this attitude in the Allport-Vernon scale.

2. The differences of the mean reaction time of the extreme *Os* to words representing the same evaluative attitude were found to be significant.

## CHAPTER VII

### A COMPARISON OF THE RECALL OF GENERAL IMPRESSIONS AND SPECIFIC CONTENT

#### A. PURPOSE

The present experiment was designed to determine whether general impressions or specific references are more enduring and to notice any significant differences in the order of the recall of general impressions and specific references when both were asked for.

#### B. METHOD

*Material.* For such a study it was necessary that the general impressions and specific references whose relative durations were to be tested should both have been formed at the same time and with approximately the same number of concepts. For instance, if the more specific references which were to be recalled had been learned by the *O* more recently than the general impression or if the specific references had been illustrated by a greater number of concepts then we would expect a proportionately larger share of specific references to be recalled.

To satisfy these requirements the personality sketches used for the study reported in Chapter IV were employed as the material for the present investigation. It will be remembered that these sketches described 12 individuals on three levels of generality, that the same number of concepts was used in both the general and the specific descriptions, and that the *Os* read each sketch the same number of times and within the same hours.

In order to determine whether the more general characteristics or the more specific references concerning the personalities sketched were recalled, one statement from each of the three sketches of nine personalities was presented to the *O*. The three statements taken from the sketches of each level of generality for a single personality were grouped together and given the *O*.

The directions were: "You will be presented with a few sentences taken from the personality sketches which you read some time ago. After reading the sentences carefully, try to recall anything more that you happen to remember about the person whom these sketches described."

The statements used to stimulate recall were the following:

1. K has always been very temperamental. He began to paint when still a boy and last night went to bed at 2:30 A.M.
2. Mr. L is Jewish. He is tall and wore a well pressed suit yesterday.
3. B is a young man of very superior intellectual capacities. He is one of the best mountain climbers in America and yesterday spent two hours in a laboratory.
4. A is a foreign girl. She lives in Europe and has a friend who is a Baron.
5. Mr. P is very independent. He built up his own one-man plant to a thriving industry with three factories and yesterday wore an old sweater full of holes during an important business interview.
6. Mr. H is a citizen of the lower middle class. He is a post-office clerk in a very large city and taught a Sunday School class last Sunday.
7. Mrs. B has a very social nature. She helps support various charities. Last Sunday she gave \$10 to the Missionary Society.
8. D is a wealthy man. He inherited \$250,000 and last week bought a new coat for his sister-in-law.
9. A is a quiet man who is usually the listener in a conversation. Yesterday he sold a life insurance policy.

The *Os* were asked to recall these personalities after approximately three months had elapsed since they had last read the sketches.

*Observers.* All of the *Os* used in the present experiment had, of course, taken part in the investigation reported in Chapter IV. These were Drs. Gilhousen (*Gi*), Goldthwait (*Go*), and Trimble (*Tr*); and Messrs. Bousfield (*Bo*), Hunt (*Hu*), and Odbert (*Od*).

#### C. RESULTS

1. *General impressions more frequently recalled than specific references.* The comparative endurance of general impressions and specific references was obtained by analyzing the information which each *O* recalled concerning each personality.<sup>1</sup> The

1. For typical introspections and method of analysis of the introspections see pp. 96-98 following.

frequencies of the recall of general impressions and of specific references may be summarized in the following table, in which the figures represent statements or words in the recalls which referred either to general impressions or specific content.

TABLE 8

O	General impression recalled	Specific reference recalled
Bo.....	14	9
Gi.....	16	4 (2 wrong)
Go.....	20	8 (2 wrong)
Hu.....	34	12 (1 wrong)
Od.....	30	12
Tr.....	21	4
Total.....	135	50
Per cent.....	73	27

The above table shows that 73 per cent of the material recalled by the *Os* consisted of general impressions while only 27 per cent of the recall was of specific references.

2. *No significant difference between order of recall of general impressions and specific references.* A comparison of the order of recall of the general impressions and the specific references was made by simply noting whether the *Os* reported general impressions or specific references first in the recall of information. The following table summarizes the order of recall.

Since 73 per cent of the material recalled consisted of general impressions, the larger number of general impressions recalled first is probably not significant, although it does show that chances are about even that the first recall will be either a general impression or a specific reference.

TABLE 9

O	General impression recalled first	Specific reference recalled first
Bo <sup>2</sup> .....	5	3
Gi <sup>2</sup> .....	5	3
Go.....	9	0 <sup>3</sup>
Hu.....	5	4
Od.....	5	4
Tr.....	8	1
Total.....	37	15
Per cent.....	72	28

3. *Typical introspections.* In order to illustrate the comparative frequency and order of recall a few of the typical reports of each *O* are given below.

*Bo*

(K—)<sup>4</sup>

- (1) The one with the artistic temperament and
- (2) Eccentric ways, although I don't recall any of his eccentric actions.
- (3) Spent an hour showing a man how to use a camera.
- (4) Examined a blood pattern in the snow.
- (5) Had strong views on social, economic, and political questions but I don't remember them.

(A—)

- (1) Domestic trend of interests.
- (2) Good looking.

2. *O* failed to recall anything about one personality.

3. It is interesting to note that *Go*, for whom, it will be remembered, imagery was essential to meaning, nevertheless *holds* a general impression.

4. Analysis of an introspection into general impressions and specific references may at first seem to be a very arbitrary procedure and one in which different results could be obtained if a different point of view were taken in the analysis. Such is not the case, however. The distinction between a general impression and a specific reference is clear in all of the reports; the former usually being given by an adjective, the latter by a brief statement concerning the specific incident or detail of the personality. For example in the first introspection of *O Bo*, items 1, 2, and 5 are obviously general impressions and items 3 and 4 are quite as obviously specific references.

(3) Cultured interests also.

(The *O* was asked if he remembered any of the details concerning these impressions and could recall only one, which concerned item 2, *viz.*, that A— had dark hair. That A— had dark hair was *not* given in the sketches.)

*Gi*

(K—)

- (1) Rather disgruntled about economic, social, and political conditions.
- (2) Artistic.
- (3) A person who had definite attitudes and behavior, although I can't remember instances of his behavior.
- (4) Melancholy individual.
- (5) My chief impression is that of an idealist who is dissatisfied with his environment.

(B—)

- (1) Very modest and somewhat
- (2) Lazy

*Go*

(A—)

- (1) Aristocratic and
- (2) Militaristic and at the same time
- (3) Quite domestic. Illustrations of these were given but they are too vague to remember.
- (4) An Italian. (This was not the case.)<sup>5</sup>

(H—)

- (1) A very moral man.
- (2) Very illiberal.
- (3) Rode a bicycle.

*Hu*

(K—)

- (1) The man who cut his finger and put it against the snow.  
I have lots of general opinions about him but I can't tie them up with specific incidents. I recall that he was
- (2) Nervously high strung and had much nervous energy.
- (3) He was very artistic to the exclusion of other things.
- (4) Had no balance and the aesthetic drive did not satisfy him.

(H—)

- (1) He rides a bicycle to work.
- (2) Carries an umbrella. (Not given in sketches.)<sup>5</sup>
- (3) Narrow minded.
- (4) Likes to talk about the weather.

*Od*

(L—)

- (1) A prosperous business man who
- (2) Is scornful of anyone who isn't practical—hence he scorns a college education.

5. All of the mistakes made were mistakes in specific reference which, although wrong, seemed to illustrate a correct general impression of the personality.

- (3) He is healthy and hates people who aren't.
- (4) Has his own ideas about exercise but I don't remember them.
- (5) Courted a wealthy girl and spent only \$1.50.
- (6) Makes outspoken remarks.
- (7) Demands good service—sent back something because it wasn't right.
- (8) Strong ideas about the family.
- (9) Makes his children do certain things to keep in good physical condition but I don't recall them.
- (10) Generally self-satisfied, dogmatic, domineering.

(B—)

- (1) Snobbish—doesn't go out of his way to help people. Don't recall any instances.
- (2) Race prejudiced—especially against Jews.
- (3) Acts differently with people he knows but I don't remember the reason why I say this.

*Tr*

(K—)

- (1) Eccentric,
- (2) Lonesome,
- (3) Independent,
- (4) Talented.
- (5) Attended a classical recital.

(L—)

- (1) Proud,
- (2) Ambitious. Recall no definite instances.

#### D. CONCLUSIONS

The results reported above seem to justify us in concluding that:

1. General impressions are more frequently recalled than specific references after an interval of three months.
2. There is no significant difference between general impressions and specific references in the order of recall.
3. All the mistakes by the *Os* were mistakes of specific content and not of general impression. These mistakes consisted in inserting a wrong specific reference, although the mistaken reference always seemed to illustrate to the *O* some general impression which he had correctly retained.

## CHAPTER VIII

### THE RELATIVE CONSTANCY OF CERTAIN EVALUATIVE ATTITUDES AND SPECIFIC CONTENT

#### A. PURPOSE

The following investigation was designed to compare the *relative constancy* of the attitudes and of the specific content aroused by a concept. Does the same point of view towards a concept persist? And, if it does persist, does it depend upon the same specific reference at different times?

#### B. METHOD

1. *Material.* The material presented to the *Os* consisted of 20 words which might be reasonably expected to arouse both an evaluative attitude and specific content. These concepts were:

war	religion	music	poetry
prohibition	slavery	business	work
Catholicism	philosophy	missionary	athletics
politics	romance	tariff	prejudice
revolution	Wundt	socialism	food

2. *Presentation of material.* Each word was typewritten in capital letters on a 3" x 5" plain white card and exposed by means of the exposure apparatus already described.<sup>1</sup> The shutter remained open for four seconds. Before the exposures the *Os* were given the directions: "You will be presented visually with single words. Several seconds after the presentation of the word you will be asked to report on the significance of that word to you. Try to include in your report your own evaluation or your point of view towards what the word represents. If you have any definite reasons for your point of view or if you recall references to particular situations, objects, persons, facts, *etc.*, concerning the word, please include these in your report. Try to be as full as possible in your introspections. Time is no factor." The complete introspections were tabulated by the experimenter.

1. See page 36.

In order to test the duration of attitudes and of specific references, the same list of words was presented to the *Os* under the same conditions and with the same directions after an interval of four weeks had elapsed since the first completion of the list.

3. *Observers.* The *Os* who took part in the experiment were Drs. Gilhousen (*Gi*), Goldthwait (*Go*), and Trimble (*Tr*), and Messrs. Bousfield (*Bo*), Hunt (*Hu*), and Odbert (*Od*).

#### C. RESULTS

The results of the investigation were obtained by comparing the introspections reported on the first presentation of the words with the introspections on the second presentation. The comparison was made in respect to (1) identity or difference of attitude reported for the same word at different times, and (2) identity or difference of specific reference (either association or imagery) for the same word.

The relative constancy of the attitudes and the specific references for the 20 words is shown in the following table:

TABLE 10

O	Attitude <sup>2</sup> remained constant	Attitude changed	Doubtful	Specific content remained constant	Specific content changed	Doubtful
Bo.....	17	2	1	6	16	4
Gi.....	13	4	3	1	15	0
Go.....	18	2	0	8	46	8
Hu.....	15	4	1	2	20	1
Od.....	18	2	0	5	15	3
Tr.....	20	0	0	5	19	4
Totals.....	101	14	5	27	131	20
Per cent.....	84	12	4	15	73	12

2. An attitude was considered to have remained constant when no difference could be detected between the points of view expressed in the two introspections of an *O*. A specific content was considered to have remained constant when the same particular object, situation, *etc.*, was found in both introspections. The "doubtful" columns represent instances in which it seemed impossible to tabulate the comparison accurately in either of the other columns.

*Analysis of the table:*

1. The attitudes aroused by the stimulus words remained constant in 84 per cent of the reports. In 12 per cent of the cases different attitudes were aroused for the same word in the two exposures.
2. The specific content aroused by the stimulus words remained constant in only 15 per cent of the cases, while 73 per cent of the specific references occurred only in *either* one or the other exposure.

*Typical introspections.* A few of the typical introspections reported by each *O* for the same word in the two presentations will illustrate the above results, *viz.*, the relative constancy of attitude and transiency of specific content.

*Bo*

(prohibition) I<sup>3</sup> My general point of view is one of amused disgust. Slight imagery of home-brew outfit.

II An unpleasant and annoying thing. Auditory image of "How dry I am".

(politics) I The feeling of disapproval. I thought of the crookedness of politics. Nothing else.

II The meaning and the general idea of politics were unpleasant because I realized the messiness and graft involved in them. Visual image of a cartoon of pot-bellied politicians.

(socialism) I A stimulating word which aroused the general idea that if socialism were put into practice it might help things. Thought of two coming out parties reported in the newspapers.

II Feeling of interest and wondered if it would work. No concrete content.

*Gi*

(revolution) I I thought that it was a good thing. Vague motor image immediately.

II Attitude of "that's good" followed by association of "red" and "Tolstoi".

(business) I I thought it was bunk. Association of adding machine.

II Association of "bunk" which represented my opinion.

(tariff) I Association of "muddle" which sums up my point of view. Visual image of a bundle of papers.

II An unpleasant mess which I don't like. Then thought of "sugar" in terms of verbal imagery.

3. I=the first introspection; II=the second introspection (after four weeks had elapsed).

*Go*

(war)

I As usual I got visual images and read off of them. First was mural in Widener which struck me as being too pale. Then imagery of dark figures trudging with knapsacks through the fog. I got glimpses of their faces. Then an image of a flag drooping from a staff.

The thought that war is an unpleasant thing came before the imagery. The whole reaction was unpleasant for I felt that wars involve too much nervous tension. Had a faint kinaesthetic imagery in arms to brush wars aside. By persuasion I am a pacifist but I doubt if pacifism will work.

(There is a P and U, a feeling, a mental judgment, just about simultaneous with imagery. This feeling is purely a tendency and is very vague—it and the imagery are a part of the same process. I am incapable of imagery or dealing without this overtone of feeling or judgment.)

II Feeling that this is unpleasant and gruesome—a pushing away feeling. Imagery of a company of Yankees (A.E.F.) in costumes of war. They were in no man's land and were pushing against a wind. Then an image of three colonials one of whom was carrying a flag, one beating a drum, and another playing a fife. Then newspaper with high red headlines and these meant (although I could not read them) a declaration of war.

(religion)

I Feeling of being tired of conventional religion—much ado about nothing. Now for the first time I realize that the focus of much of my thought on religion was a book that I got out of Widener long ago and that summarized my opinions. As soon as the shutter was raised I got an image of a book and knew it was this book, although I don't know the title or the author. Then an image of Haeckel's "Riddle of the Universe" came in underneath the first book. Overlapping and following this were some formal pictures concerned with Christ with crown of thorns against a smoky blue background. There was much color in his robes—a glass window effect. Another picture of Mary and the child with a bearded person on the side—this picture became more and more stained.

II General impression of a nonsensical jumble. The first image was of a group of three angels or saints in white nightgowns. They were seen as bodies in stained glass windows. Then an image of a jumble of yellowish grey stone work which I think meant a large number of churches of different constructions all jumbled into one. I think the indirect meaning to all this was that all denominations are jumbled into one. Then a brief return to the three saints and the word "religion" written in red in an arch above them.

(Wundt)

I Four brown books being a part of the P. P. which is my symbol for Wundt. Then a symbol of Titchener's interpretation of Wundt which was a brown, complicated, well integrated wooden structure which had four groups of three pillars, a bar above them and on top of the bar a smaller reproduction of the pillars underneath. Above this were more

reproductions of the pillars until the whole thing worked into a peak and represented a careful balance of Titchener's point of view. All the time I assumed that Titchener was Wundt in English.

II Image of a man who was somewhat like Titchener but heavier and browner. He was sitting in a narrow alcove behind a table. There were books on either side of him and a window behind. I have never seen a picture of Wundt and I think he was brown in the image because his books are brown. He resembled Titchener because the latter represents Wundt to me.

*Hu*

(Catholicism) I I hate Catholicism because it is the epitome of all that I hate in religion. Yet I have to admit its logical and aesthetic appeal of completeness. But for me it is completely bad. Visual image of Chesterton.

II Conscious of meaning and of my strong dislike for it. An image of incense.

(religion) I General thought of forms of religion and my distaste for all religion. Vaguely thought of difference between a "religious" man and a really religious man.

II Another general principle aroused—this time of distaste. No specific details.

(music) I A pleasant attitude of distinct approval. Then thought of the controversy between music as a consciously trained artifice and as an innate language of the soul. My idea is that it survives because it is taught to so many people.

II An agreeable feeling tone of appreciation. Thought of Bach and the coming festival.

*Od*

(prohibition) I Idea of a general mess and of silly disputes. No reference to any particular dispute.

II Thought of the whole movement as being rather silly. Then wondered how right it is that people prohibit things because they are tempted by them themselves?

(politics) I General context of messing around and string pulling. Then reference to a friend of mine who knows all about underhand politics.

II Idea of string pulling, graft, *etc.*, and the general attitude "that's the way things are going on". Feeling that I haven't a great deal of interest in it.

(philosophy) I Feeling that philosophy is a waste of time in that when you philosophize you don't work. A thing that psychology is trying, rather unsuccessfully, not to be.

II Feeling that it doesn't get anywhere. The wondering about what and why of things in general. Objection to word slinging of the Socratic method. What do philosophy majors do all the time?

*Tr*

(romance) I A pleasant feeling of approval. Romance as a departure from the normal and towards beauty. Association of love, sunshine, roses, and mutual give and take of the sexes.

II A halo of pleasantness. Looking for the beautiful in all of life. Thought of Chocolate Soldier of Shaw, of the Three Musketeers, Shelley, Keats, and Wordsworth.

(tariff) I I am opposed to it because of the politics involved. Vague image of tariff wall along Atlantic coast.

II Identified myself with the attitude of the Democratic party—that's why I am a Democrat. Thought of the duty levied on various imports and of an editorial of Fosdick's on the tariff.

(Catholicism) I It is all right with me so long as it keeps social. Awareness that it is opposed to Protestantism.

II I do not oppose the religion so long as it doesn't interfere with mine. Visual images of nuns, and the ornaments used in a Catholic service.

## D. CONCLUSIONS

The results of the investigation show that the evaluative attitudes exhibited in respect to and aroused by various words remain relatively constant, while the specific references aroused by the words at different times are usually different.

The normal process involved in the introspections shows that an attitude towards the word <sup>4</sup> usually precedes any specific reference and that the specific reference aroused is (except in the case of *Go*) a rather unnecessary appendage of the attitude.

4. Cf. also Chs. II and III.

## CHAPTER IX

### CONCLUDING SUMMARY

The studies reported attempt to throw some light on the relationship between general determining tendencies and more specific attitudes or content in mental life. To do this it was first necessary to answer the question, "Are there such things as general determining tendencies or general attitudes?" Since a positive answer to this question was found, we next inquired into the nature of such general determining tendencies by ascertaining whether or not they were dependent upon conscious specific content for their existence. An answer to this led us into a consideration of the relative duration and constancy of general determining tendencies and specific content. And, finally, we obtained from our studies some knowledge of the functional nature of a general determining tendency.

Our final conclusions, then, are at least partial answers to these phases of the original query concerning the relationships between general determining tendencies and specific attitudes or content in mental life. Our approach was a pluralistic one and we shall combine the evidence for our conclusions from the results of the different investigations made.

### CONCLUSIONS

1. *Generality of some sort in mental life is independent of specific (conscious) content.* This conclusion is based upon the following discoveries:

- a. For the majority of *Os* (five out of six) any form of reference to specific content is entirely unnecessary for the comprehension of the meaning of a word or statement. The meaning of words and statements is grasped by these *Os* before the conscious occurrence of any form of specific reference to mental content. (Cf. Chs. II, III.)
- b. The study of evaluative attitudes shows that tests of general

attitudes which contain no reference to any specific items are more highly reliable than tests of specific evaluative attitudes. (Cf. Ch. V.)

c. An investigation with general and specific descriptions of people has shown that an understanding of a personality can be gained from descriptions containing only very general terms. When a description contains a small number of general terms it produces more vivid understanding than a description of the same length composed of specific terms. (Cf. Ch. IV.)

d. Correct general impressions can be retained over a considerable period of time although the specific content which had provided the original reason for the impressions may be forgotten. (Cf. Ch. VII.)

2. *General determining tendencies are more constant and enduring than specific content.* The results substantiating this conclusion are:

a. A study concerned with the general attitudes and specific content aroused by various concepts has demonstrated that general attitudes remain relatively constant while specific content is usually different at different times. (Cf. Ch. VIII. Cf. also statement *d* under conclusion 1.)

b. General impressions are more frequently recalled than specific references. (Cf. Ch. VII.)

3. *The formation of a general determining tendency may in some cases be due to a cumulation and integration of specific thought processes.* This conclusion is supported by the fact that general attitudes were aroused in the *Os* towards personalities when these personalities were described only in very specific terms. (Cf. Ch. IV.)

4. *If a stimulus situation is applicable to an existing general determining tendency, then that determining tendency is aroused before any more specific attitude or content.* Results which demonstrate this conclusion are:

a. The normal course in the comprehension of the meaning of words or statements involves, first, an understanding of the general meaning of the word or statement and later, in delayed introspections, reference to specific content. (Cf. Chs. II, III.)

b. The normal course of events reported in the introspections on words designed to provoke attitudes shows that an attitude towards the word usually precedes any specific reference and that the specific reference aroused is, in the great majority of cases, rather an unnecessary appendage of the attitude. (Cf. Ch. VIII.)

5. *A general attitude seems to serve as a dynamic or directive, or at least as a determinative influence upon more specific attitudes and reactions.* This conclusion is derived from the following results:

a. A positive correlation was obtained between an individual's degree of acceptance of a particular evaluative attitude and his speed of association time to words which had particular reference to that attitude. This indicates that an individual's attitude exerts a significant influence on a very specific aspect of his behavior, *viz.*, his speed of association to words. (Cf. Ch. VI.)

b. In the study of evaluative attitudes, the higher reliabilities of the more general attitudes, the positive correlations between the specific and the general tests, and our criticism of the adequacy of the theory of specific identical elements to explain these results, would seem to indicate a capacity of the mind to generalize its evaluative attitudes and to apply them to less general situations. (Cf. Ch. V.)

c. In the investigation of the recall of general impressions and specific content, all the general impressions recalled by the *Os* were correct. However, errors were made in the recall of specific reference, although the mistaken specific references recalled were illustrative of a *correct* general impression. (Cf. Ch. VII.)

d. The greatest efficiency in the comprehension of descriptive material is found when a more general description is read first and is then illustrated or specified by some detailed description which follows it. A general description seems to create an *Einstellung* in the *O* which becomes readily crystallized by a specific description. (Cf. Ch. IV.)

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